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ABSTRACT

This book provides information to help teachers use the Internet in the classroom. Tips from 28 educators note potential pitfalls and offer many perspectives on teaching with the Internet. The educators present their own classroom materials, lesson plans, Web sites, and words of wisdom. Interviews with renowned experts in the field address key challenges educators face as they open their schools and classrooms to online teaching and learning. Chapter 1, "How to Manage the New Media Classroom," offers "Getting Started and Starting Small" (Janice Gordon). Chapter 2, "How to Use E-Mail for Online Collaboration," includes "Networking Possibilities and Challenges" (Ed Gragert). Chapter 3, "How to Teach the Art and Science of Conducting Research Online," offers "Travis Olson's Guide to Becoming Comfortable with Technological Tools" (Travis Olson). Chapter 4 discusses "How to Teach Diverse Learning Styles." Chapter 5, "How to Design Webquests," offers "How I Created a Monster (Web Site, That Is!)" (Carl Sarrito). Chapter 6 features "How to Escort Your Students on a Virtual Field Trip." Chapter 7 discusses "How to Produce the Virtual Textbook K-12." Chapter 8, "How to Assess Student Work in the New Media Classroom," includes "Evaluating Web Sites" (Kathy Schrock). Chapter 9 offers "How to Create a Grant-Winning Proposal." (SM)

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How to Use the Internet in Your Classroom

By Teachers, For Teachers

A guide for teachers, technology coordinators, staff developers, administrators, and other educators

about teaching and learning in the new media classroom.

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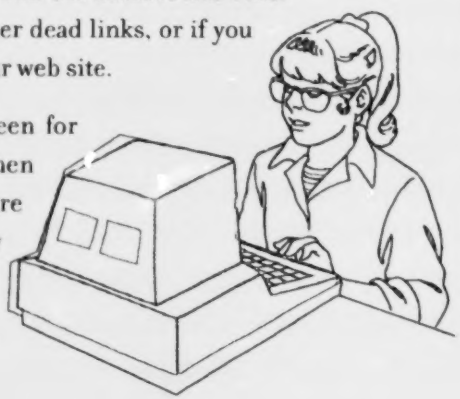
EVERYBODY IS STRUGGLING WITH THE NEWEST LITERACY– technology and how to use it. Whether you are a classroom teacher faced with integrating new media for the first time, or a staff developer charged with bringing others on board, ***How to Use the Internet in Your Classroom*** will be an invaluable resource. What better way to enhance your skills than by learning from experienced, net-savvy teachers. These teachers will steer you away from potential pitfalls so you and your students get the most out of technology.

Twenty-eight teachers in our network contributed to this publication, and all are eager for you to benefit from their expertise and experience. They span a wide geographic region—from California to Maine to Peru—and offer a variety of perspectives on teaching with the Internet. They offer their own classroom materials, lesson plans, web sites, and words of wisdom to assist you. Interviews with renowned experts in the field address key challenges educators face as they open their schools, and their classrooms, to online teaching and learning.

How to Use the Internet in Your Classroom is actually much bigger than this book. We have a great deal of resources available on our web site, and we'll take you right there. We put all supplementary materials –and there are lots of them!—on our site to keep links fresh. We will update them frequently. Every time you see this symbol , log on to **http://www.teachersnetwork.org** and you will find additional resources, templates, and examples to supplement this guide.

For our readers, we have created an online Readers Forum at **http://www.teachersnetwork.org/book/BBS** We welcome your comments, critiques, suggestions, and information. You may also use this forum to network with our authors and other readers. Also, please let us know if you encounter dead links, or if you would like to contribute your own materials to our web site.

We all know how motivating new media has been for kids. We promise you too will be motivated when you learn the ways in which creative teachers are using the Internet in the classroom, and how easy it is to get started. See you online!



Contributors

Laura A. Clark
Dual Language Middle School
New York, NY

Tiffanie Davis
Idalou Middle School
Idalou, TX

Mary Katherine Flohr
DePue Unit District 103
DePue, IL

Dale M. Hannon
Williams Junior High School
Oakland, ME

Eric Hendrickson
Presque Isle High School
Presque Isle, ME

Susan Herzog
Mott Hall Intermediate School 223
New York, NY

Carolyn Hornik
Public School 101
Brooklyn, NY

Tracy W. Jackson
Wiscasset Primary School
Wiscasset, ME

Kathy Johnson
Apollo High School
St. Cloud, MN

Judith D. Jones
East Chapel Hill High School
Chapel Hill, NC

Linda T. Kuzyk
Crescent Park School
Bethel, ME

Peggy Maslow
Franklin K. Lane High School
Brooklyn, NY

Lori Mayo
Jamaica High School
Jamaica, NY

Susan Lynne McMahon
Fernando Rivera School
Daly City, CA

Katherine Nell McNeil
Northwood Junior High School
Renton, WA

Tracey A. Melandro
East Northport Middle School
Northport, NY

Cheryl Steele Oakes
Wells Elementary School
Wells, ME

Travis Olson
DePue Unit District 103
DePue, IL

Carla DeAngelo Pelz
Port Clinton Middle School
Port Clinton, OH

Dinu Pietraru
Franklin K. Lane High School
Brooklyn, NY

Nancy Norem Powell
Bloomington High School
Bloomington, IL

Hope Reichbach
Hunter College High School
New York, NY

Carl Sannito
Henry Suder Elementary School
Chicago, IL

Joan E. Schrader
Reidinger Middle School
Akron, OH

Rosemary Shaw
Millennium Middle School
Sanford, FL

Pat Shea-Bischoff
Myra S. Barnes Intermediate School 24
Staten Island, NY

Barbara J. Smith
Harvard Elementary
Houston, Texas

Ann Tangerose
Colegio F.D. Roosevelt
Lima, Peru

Julie Vitulano
University Neighborhood High School
New York, NY

EDITOR-IN-CHIEF
Ellen Meyers

ASSOCIATE EDITOR
Carla Huck

DESIGN
Heidi Fener

PHOTOGRAPHY
Kristine Larsen
John Schaefer

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Ellen Dempsey,
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Ellen Meyers,
Senior Vice President

For more information, contact:
Teachers Network
285 West Broadway
New York, NY 10013
info@teachersnetwork.org
www.teachersnetwork.org

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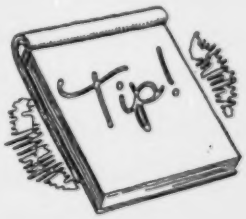
CHAPTER 1
How to Manage the New Media Classroom

A WELL-MANAGED CLASSROOM IS AN ENVIRONMENT in which students know what is expected of them, materials are stimulating and accessible, and teaching methods are appropriate to the students' learning styles and needs. With alternative methods of teaching and learning now making inroads into our existing education system, educators must determine how best to strike a balance between traditional and new media learning. Whether students are using computers in their own classroom, in the library, or in the computer lab, classroom management procedures tailored to instructional technology must be firmly in place prior to their turning on the computers.

Stacking the Deck



ONE HIGH SCHOOL ENGLISH TEACHER wrestled with the question of how to set up an Internet research project that would guarantee students stay focused on the assignment without getting sidetracked or lost in the labyrinth of web sites. She offers the following advice:

1. **Set ground rules before you get to the lab.** Assign students to a computer in the lab and then make a seating chart for that period. You will want to break up clusters of students who like to talk. Also, try to group students so that some of the more technologically gifted students are near others who might encounter computer problems.

2. **Give the students an outline.** Clearly state the scope and purpose of the project, using a step-by-step method. Include a time schedule for each part

of the assignment, letting students know how many days they will have access to the Internet during class. You will notice a vast improvement in the quality of their research and final presentations—a win-win situation for teacher and students.

Devise a list of web sites that students must visit first. This is a critical step in ensuring success. Spend time on the Internet researching the topic, and come up with four or five "must visit" sites. This will allow students to start their own research, yet stay focused on the subject. To ensure that students use additional sources, require them to list the sites they have found and used to create their project. Teach them how to cite these sources in a bibliography.

Walk around the room. A visit to the lab does not mean time for a teacher to grade papers, surf the net, or catch up on e-mail. A successful lab period requires staying on your feet the whole time, walking around and reading what is on the students' screens. If the students know you are paying attention to what they are doing, they are less likely to get distracted by an advertisement or link that does not pertain to their subject. Comment on sites they are viewing, and encourage them to branch out and explore the topic on their own. Remind them to bookmark the sites they have visited for easy reference.

Keep a journal of what works and what doesn't work in the lab. Use this journal to revise your handouts and, perhaps, your expectations for the upcoming year. Remember that each class is unique, and something that works well one year may bomb the next year. Don't be afraid to let students explore, but try to increase their chances of succeeding by doing your own homework before they begin.

Management of a wired classroom also involves planning for the many technical problems that can arise and be discouraging to the students. You might consider using a presentation station—a computer with Internet access attached to a television or a projector—to instruct the entire class on technical procedures at one time. Teachers have found this technique useful in demonstrating how to use various software programs, navigate the Internet, and save files correctly.

We recommend teaching students how to save files on the desktop, to a student folder on the server, **and** to a disk. This process may seem cumbersome, but it will eliminate many headaches; if a student's file fails to open from a disk, his or her work may

still be retrieved from the desktop or the server. Having their own disks allows students to work on any computer that becomes available, or to continue working at home, while keeping their work on the school server allows the teacher access for management and assessment purposes. It also facilitates the joining of individual files into one class project.

Teach students the habit of saving their work frequently. Demonstrate how to name files, and which extensions they should use (e.g. Word document – .doc; picture or photo – .gif or .jpg; web page – .htm). You might also want to create a shared space on the school server, for shared documents and images. Place a scanned picture or a photo from a digital camera into a 'pix' file on the server to make it available to all students working on networked computers. The students will spend less time – often wasted time—looking for pictures to illustrate their projects by using your library of images.

Cooperative Learning

MANY TEACHERS EMPLOY COOPERATIVE learning in their classrooms, either on a regular basis or for special projects. The principles of cooperative learning transfer well to the new media classroom, where the teacher-student relationship is altered to reflect the more active role of the learner. For classrooms that are equipped with only three or four computers, teachers can effectively manage technology projects through use of cooperative learning groups. An elementary school technology coordinator lends her insight on this topic:

> *Teachers often find it difficult to have students use the computers because there are only four computers in an elementary classroom with 30 students. One technique to address this situation is to form cooperative learning groups. Within each group students are assigned specific roles or jobs, such as researcher, illustrator, information processor, presenter, or group leader. The teacher might schedule time for each of the four researchers, for example, to do online research or research from multimedia encyclopedias on the computers while other group members are working at their seats. They may be actively working on the assignment using books, worksheets, and other materials relevant to their tasks. Time would be scheduled for the information processors to compile the information into typed reports or spreadsheets, and the illustrators would have computer access to find graphics to enhance the project. Presenters might share the compiled information with the rest of the class via a multimedia slide show.*

By having the students work cooperatively and breaking down the assignment into

various components, scheduling computer time becomes more manageable. Students learn how to make decisions, assist one another, and develop a sense of responsibility—and pride—for the quality of their contribution to the group.

Empowering Students

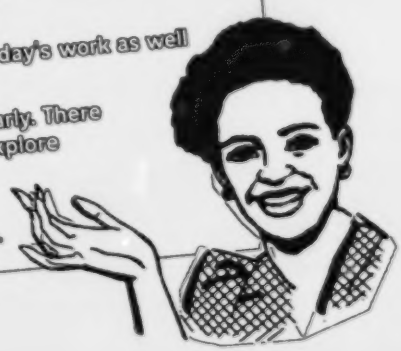
YOU MAY ALSO CONSIDER what students in your class want to learn, and how they like to be taught. Their preferences can often provide interesting and useful insights into your efforts to use technology in your classroom, and help you achieve a balance between traditional and new media education. A teacher of seventh-grade American history asks students on the first day of school what they would like to learn. One frequently named subject is the Salem Witch Trials, which is covered briefly in two sentences in the course textbook. Seeking to satisfy their curiosity, while at the same time introducing them to Internet resources, she developed an Internet lesson plan that incorporates research, simulation, and a journal. She offers the following advice:

> *Using the Internet is a great way to "fill in the gaps" left by textbooks and highlight topics of interest to our students. The most critical key to Internet lessons is being prepared. If you do not prepare, students may not be getting the experience you had anticipated.*

Here are other keys:

The Keys to Creating a Great Internet Lesson Plan

- Find a topic and decide what you and your students want to learn about it.
- Prepare a list of web sites in advance. Use search engines to find appropriate web sites for your project.
- Design tasks to complete at each web site. Identify the site clearly on your worksheet, and have students write answers to the questions you have created from each site.
- Review the material on each site carefully. Check all links and make sure they are appropriate.
- Develop a valid assessment of the entire project. Share your evaluation rubric or guide with the students before beginning the project.
- Do the assignment yourself. Make checkpoints for each day's work as well as a realistic time schedule for completion.
- Always have a list of web sites for students who finish early. There are many valid and fun sites for the early finishers to explore on their own.
- They can also be given extra credit for completing an additional assignment that you have prepared in advance.



By using new media in your classroom, instruction can be varied to target the different aptitudes and learning curves of individual students. Some teachers find that students work much more intently on their writing assignments when they use a word processor. They can make corrections and revisions easily, and post their final drafts to a class web space for peer review. A chance to sample pleasurable Internet-based activities is used as an incentive to complete the standard assignments in a timely manner. One teacher does it this way:

> *I tell students that they get to use the earphones and listen to poems read by different people, but only after they have typed a final draft of an essay on two poems and posted it to our web site. I use the Internet as a 'carrot.'*

An English teacher, in a middle school, found that one of her students was extremely knowledgeable about the Internet. To foster his enthusiasm for writing, she gave him an extra credit assignment to write a column about technology for the school newspaper. His *CyberDan.Org* column included links to favorite author sites, a page on alien intelligence in the universe, and a source for Spanish e-greeting cards. This column proved instructive for the entire school community. Encouraged by the response of his teachers and peers, Dan next tackled the creation of his own web page based on the theme of mythology, which was being covered in class at that time. Reflecting on this self-directed learning experience, his teacher noted:

> *Teachers have no idea how much they can gain by allowing a child to explore on the Internet. Danny was highly motivated by our unit and really enriched his learning through this project. More importantly, he wanted to share his learning with other students.*

Maintaining Discipline

BEFORE STUDENTS ACCESS THE INTERNET, school administrators, teachers, media specialists, and parents need to develop a formal set of usage guidelines. Such guidelines are called "Acceptable Use Policies," or AUPs. An AUP outlines the terms and conditions of Internet use, access privileges, and rules of online behavior. It is signed by students, parents, and teachers.

When developing your AUP, be sure to involve students and parents from the very outset. Focus on getting students and parents to understand that the privilege of Internet access carries with it a measure of responsibility. Define what you consider to be acceptable online behavior, or "netiquette," and clearly spell out the consequences of violations or network abuse. Be specific: leave no room for misinterpretation or misunderstanding. Make sure that your AUP is written in language that is

easy to understand. Many people are not techno-savvy, so you should avoid technical jargon as much as possible. For schools with a bilingual population, you will want to have the document translated.

Remember: an AUP can only be successful if everyone believes in it. Before drafting an AUP for your school, district, or classroom, visit our site to see examples and down loadable templates. Go to:
http://www.teachersnetwork.org/book/aup

For a series of concise articles on managing your classroom, check out the *For New Teachers, "How-to"* area of the Teachers Network site:
http://www.teachersnetwork.org/docs/ntol/howto/manage/index.htm

Current topics include "Create a Meaningful Contract for your Class," "Encourage and Foster Good Attendance," and "Teach a Rule or Routine." We hope the following how-to, "Earn Respect," will entice you to go online and check out this treasure trove of advice from seasoned teachers.

The Virginia Department of Education's Division of Technology recommends that an AUP contain the following components:

- a description of the instructional philosophies and strategies to be supported by Internet access;
- a statement of the educational uses and advantages of the Internet to your school or division;
- a list of the responsibilities that Internet use brings educators, parents, and students;
- a code of conduct governing behavior on the Internet;
- the consequences of violating the AUP;
- a description of what constitutes acceptable and unacceptable use of the Internet;
- a disclaimer absolving the school division, under specific circumstances, from responsibility for problems that arise from Internet use;
- a statement reminding users that Internet access and the use of computer networks is a privilege;
- a statement that the AUP is in compliance with state and national telecommunication rules and regulations;
- a signature form on which teachers, parents, and students can indicate their intent to abide by the AUP.

HOW TO EARN RESPECT

Cynthia Carbone Ward

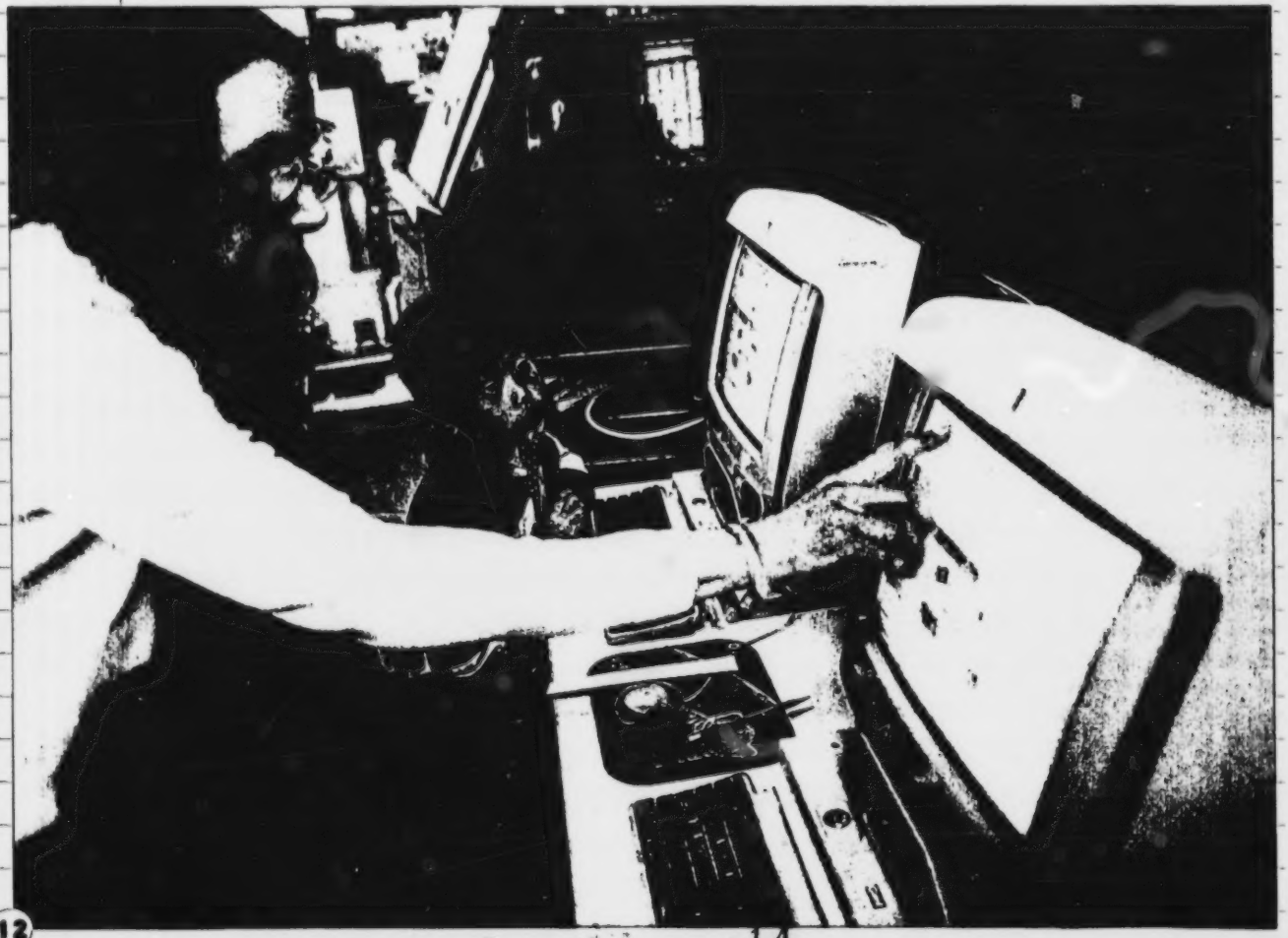
Don't confuse respect with popularity. The latter is a shiny penny kind of thing — it's nice, but by itself it isn't worth much. Respect is earned over time, seldom acknowledged, and not very flashy, but it's the essential underpinning of your relationship with students. Since I believe first and foremost that respect is a two-way street, I decided that I might get pretty good insights on the subject from some of the kids in my own sixth and seventh grade classes. Their advice was so sound, I have not been able to improve upon it. Here, in their exact words — with the spelling corrected — is what they said makes them respect a teacher:

- *I respect a teacher who gives us two chances at things.*
- *Treat everyone equally. Don't favor one student. Be fair. Be generous. Be sensitive. Be on schedule. And never say one thing and do another.*
- *Teachers I respect are knowledgeable about the topics they are teaching. They lay down the rules from the beginning and don't alter them. A teacher should never show that he favors one student, even if he secretly does.*
- *I respect a teacher who listens to your ideas, who listens to you...a teacher who makes learning fun and interesting...a teacher who has time for you.*
- *I respect a teacher who really tries to help someone improve.*
- *To get respect from a kid, you have to be credible. Also, be nice but stern. Know what you are talking about and be creative.*
- *I respect a teacher who is not lazy, who works very hard. Be consistent. Mean what you say, and follow through. And don't try to be one of the kids. Being "cool" is fun at first but it doesn't work. Kids need to have a grown-up in charge.*
- *What makes me respect a teacher is when they follow through! I like it when it when they like kids and have fun with the class while we are learning. I don't respect teachers who don't like kids — why did they become teachers?*

That's a lot of eloquence and wisdom to digest. I think it can be boiled down to the following points:

1. **Be strict but not inflexible. Have a heart and don't be afraid to show it.**
2. **If you want kids to work hard, YOU must be willing to work hard. Model good work habits and demonstrate good values. Care a lot.**
3. **Establish a track record of honesty and consistency. Mean what you say. Follow through.**
4. **Don't take a cheap path to popularity. Maintain your adultness.**

So there you have it. Don't expect enlightenment, gratitude, or quick results. Someday your students will realize how much you loved them, how hard you tried. Or maybe not. It doesn't matter. Just keep doing your best. Respect yourself.



Computer Lab Guidelines for Students

KEEP YOUR LAB CLEAN.

There is no gum chewing, drinking, or eating in the computer lab.

HELP MAINTAIN YOUR WORKSPACE.

Report any problems you notice with software or hardware, and any evidence of vandalism or theft.

USE YOUR NETWORK ACCOUNT.

Log in to the system with your designated username and password. Do not use another student's account. Never reveal your password to anyone.

SAVE YOUR WORK OFTEN.

Save your work on a designated network drive space, or on a floppy disk, as instructed by your teacher.

FOLLOW E-MAIL PROTOCOL.

Note that electronic mail is not guaranteed to be private. System administrators have access to all mail. Messages relating to or in support of illegal activities may be reported to the authorities.

BE POLITE.

Do not send abusive messages to anyone.

USE APPROPRIATE LANGUAGE.

In all online communications and documents, do not swear, use vulgarities, or employ any other inappropriate language.

RESPECT PRIVACY.

Never reveal your personal home address, home phone number, or the phone numbers of any other individuals. Your personal signature on any e-mail must use the school address only. Notify your parent(s)/ guardian(s) and teacher immediately if any individual is trying to contact you for illicit or suspicious activities.

UPHOLD COPYRIGHT LAW.

Do not download or install software programs on any network computers.

USE THE INTERNET RESPONSIBLY.

Playing games or using Internet relay-chat is prohibited unless authorized by a teacher for classroom purposes. Do not access web sites featuring pornographic, discriminatory, or hate group content.

RESPECT ACCESS RIGHTS OF OTHERS.

Do not use the network in a way that disrupts the use of the network by others. Abide by the computer time limits set by your teacher.

REMEMBER:

The use of the computer lab is a privilege, not a right, and inappropriate use will result in cancellation of that privilege.

Photocopy this, and post in your school computer lab.
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DEAR DIARY: WELCOME TO CYBER ENGLISH

Lori Mayo

The week before my class began, I found out that the one person in the building hired to do technical support had left the building. And boy, did I need technical support! After countless frustrating phone calls and faxes, I realized that I was on my own until the semester began and the kids arrived on the scene. Though computers are uncharted waters for many of us, our students have grown up with them. They know much more than most of us and are able to solve technical problems that we can't even begin to understand. And they love the new shift in power. Here is my first week journal:

Day One

I was so excited to tell my kids what we would be doing this semester. After the initial housekeeping (checking program cards, trying to match faces and names, assigning seats) I gave them the news that we would be working on the Internet to create our own web pages with links to all of the writing we would do during the term. Some kids looked scared, some looked puzzled, but most looked ecstatic that this would not be business as usual. By the end of the day, the word had spread, and other students were stopping by to ask me if they could get their programs changed and sign up for my class.

Day Two

Though most of the kids seemed to have experience using computers, hitting keys before I even took attendance, I used the projector and went through the steps of getting started. The first step that each student needed to take was to get an e-mail account and get a web site address. For their e-mail screen names, I had them use the school initials, JHS, followed by their 4-digit school identification numbers. Their passwords would be their 4-digit i.d. numbers followed by JHS. This paid off, as many students forgot their passwords. Later in the term, as they become more familiar with e-mail, they will change their passwords and be responsible for remembering them.

Day Three

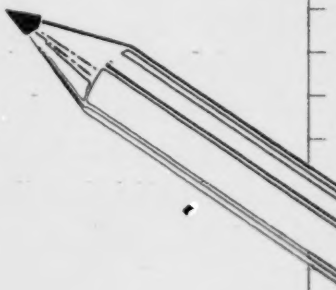
I gave each student a copy of the HTML codes they would need to set up their home pages. As I had set up my own home page before the semester began, I was able to anticipate some of the mistakes my students would make. One careless typographical error would change everything. Almost everybody was able to set up a page in one class period, and they were thrilled at seeing their names at the top of a page that the whole world could see. The implications for my students, most of whom have relatives in other countries, went way beyond my classroom.

Day Four

"How do I make my home page colorful like yours?" was the question asked by kids as they rushed to their stations. Before the semester began, I had set up a page that had links to help the kids get started and find their assignments. I called it "Welcome to Room 218." It contained a style sheet, with information for designing web pages.

Day Five

With all the program changes that occur in school, kids were being added and dropped like crazy. The kids who were in the class from Day One helped the newcomers set up their accounts and get started on their home pages. I could see already how the wired classroom would operate in a much different way than the traditional classroom: kids worked at their own pace, kids collaborated to help one another, and I was no longer the expert.



GETTING STARTED & STARTING SMALL

JANICE GORDON is the Mobile Learning Coordinator for the Hartford, CT public schools. While working at the Mott Hall School in New York City in 1996, Janice was chosen as the first New York City public school teacher to implement an Anytime, Anywhere Learning (AAL) laptop program for students. As a result of the program's success, she gained national and international recognition. A former fellow in the Teachers Network National Teacher Policy Institute (NTPI), Janice is currently an online course instructor, a web mentor, and a member of our board of directors. Here she provides us with her advice for teachers just starting to explore the Internet and its role in the classroom.

TEACHERSNETWORK: What are the networking possibilities that you are seeing between students and teachers, and among schools, due to the Internet?

JANICE GORDON: I see a learning environment without any walls...learning taking place anytime, anywhere as a result of the ability to access information via the Internet. The learning does not stop when the student has left the classroom; therefore parents are becoming more involved in their child's education. Students, teachers, and families set high standards and expectations.

Students are also able to connect with teachers via e-mail. Often middle and high school students are shy or embarrassed about appearing less competent than their peers, so they avoid asking questions or raising concerns in the classroom. Through the use of e-mail, students are more apt to share honestly with peers, teachers, and/or administrators.

TEACHERSNETWORK: Are you concerned about the dangers of the "digital divide," creating a society comprised of haves and have-nots?

JANICE GORDON: I think that society is already comprised of the haves and have-nots

and so technology is our best shot to begin to level the playing field. With the government's commitment to the e-rate program and initiatives like laptop programs and computer refurbishing programs that bring hardware to homes and schools, I believe all students will eventually have a chance to gain skills that will be vital in higher education and future employment. It is up to local communities to advocate for the integration of technology in their school systems.

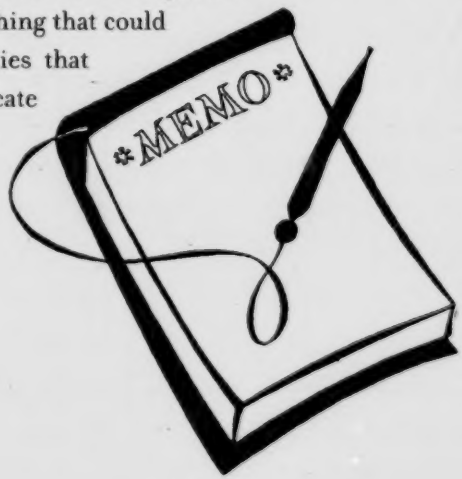
TEACHERSNETWORK: What recommendations would you make to teachers in evaluating the quality of material found on the Internet?

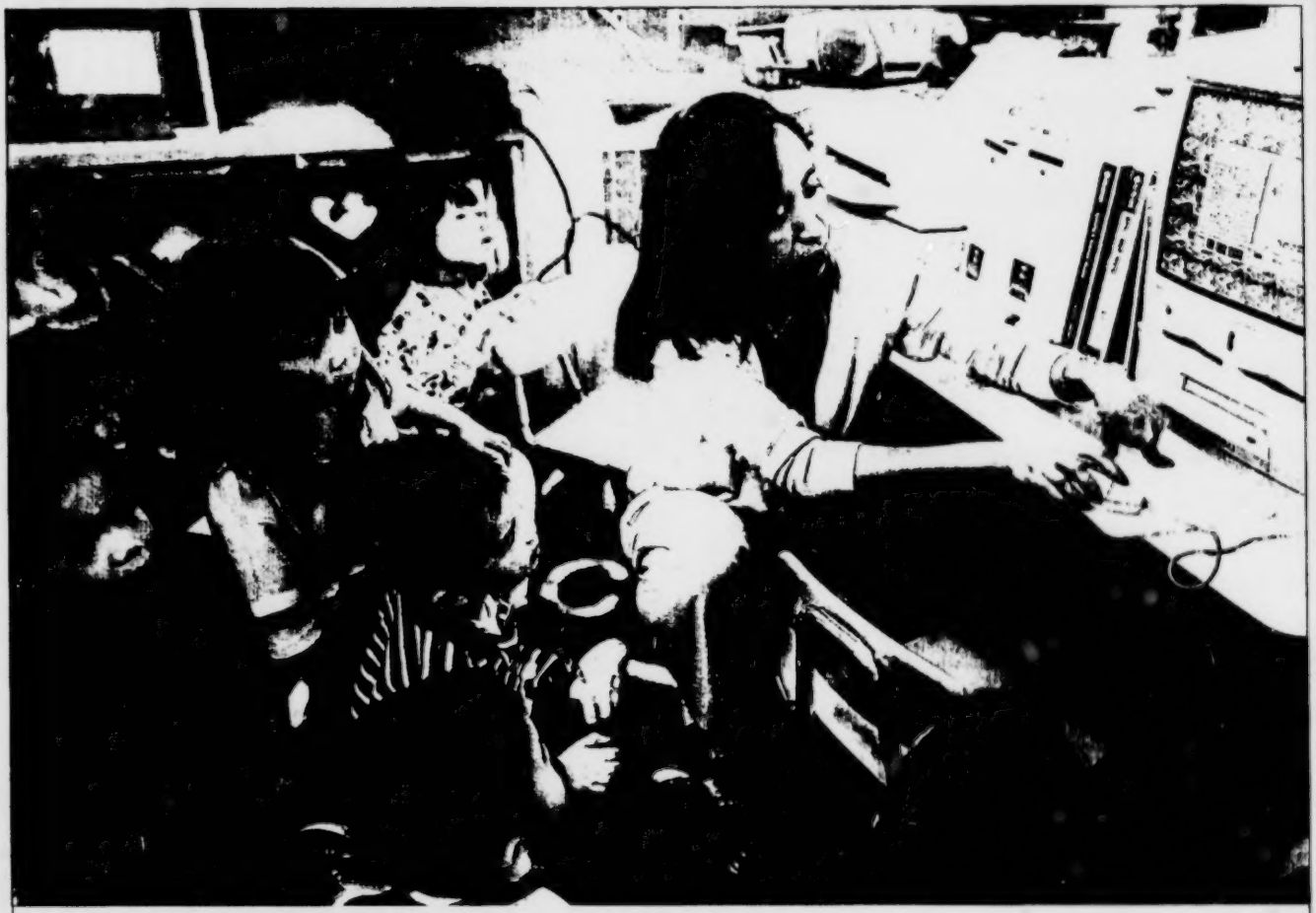
JANICE GORDON: I would recommend that teachers look at who is compiling or writing the material found on the particular web site. The material should not be commercial and unproven; it should be content that has been tested by real teachers.

TEACHERSNETWORK: What advice would you offer a teacher who wants to begin incorporating the Internet into his or her classroom teaching?

JANICE GORDON: I think that teachers who wish to use the Internet in their classroom teaching should start small. Make sure that you have the required hardware for the job. If you only have four computers in your class then you would probably not plan an Internet lesson that requires all of the students to be online at the same time.

I caution strongly against using the Internet merely for the sake of using the Internet. I would advise teachers to ask themselves, "Why and how am I using the Internet?" Are you doing a worksheet online that could be done in hard copy, or are you conducting a collaborative project with students in another country? The Internet should help a teacher accomplish something that could only be done with this medium. Design activities that require students to solve problems, communicate with others, create new products, and engage in unique learning activities.





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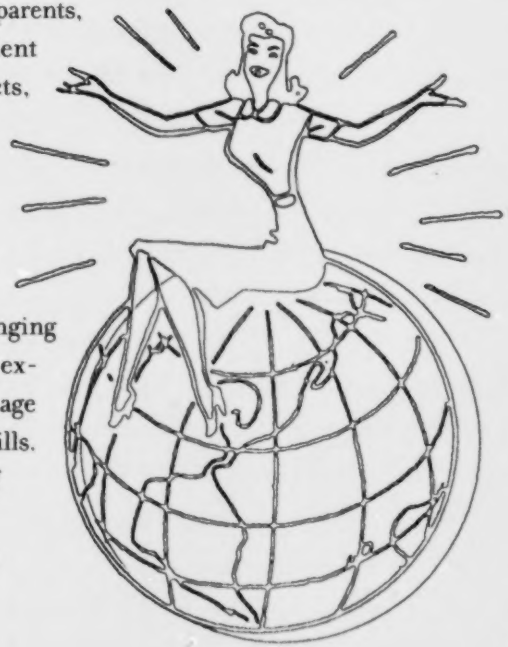
CHAPTER 2
How to Use E-Mail for Online Collaboration

THE FIRST STEP ON A TEACHER'S JOURNEY through the Internet is often to set up an e-mail account. These accounts are provided by a monthly fee-based Internet Service Provider (ISP), or offered free through various web sites accessible from any computer worldwide. You might have an account through your district or county office; or if you are a student or alumnus you may be eligible for a free account through your university. E-mail will not only enhance your personal life, but may become a vital element in your classroom toolkit. From communicating with colleagues, experts, parents, and community members to fostering student participation in telecommunications projects, the possibilities are endless.



Keypals

ONLINE PENPALS, OR KEYPALS, enable students to learn what everyday life is like in other parts of the country, or the world, by exchanging information electronically. Through keypal exchanges, students practice and strengthen language mechanics, communication, and grammar skills. To locate and set up keypal exchanges, try one of the sites we recommend:

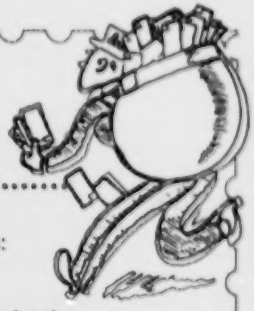
http://www.teachersnetwork.org/book/keypals

Once you and another teacher have agreed to work together, we recommend the following steps:

1. **Exchange class lists** with your partner teacher and pair up your students.
2. **Have students type their introductory messages** using a word processor, if you are going to send them through your e-mail account, or have students compose and send the messages through their own e-mail accounts. You may want to review drafts first, to check for spelling or grammatical errors. Introductory letters usually include information about community, school, interests, and family.
3. **Remind students** to put the recipient's name in the subject section of the e-mail, if the messages are being sent to the collaborating teacher. If students are exchanging messages directly, you may ask them to cc: you each assignment.
4. **Print out messages for students** to keep in a writing portfolio. This will allow you to monitor their writing progress throughout the year.
5. **As students become more familiar with keypal correspondence**, work with the other teacher to design activities to engage students in critical thinking and problem-solving activities. For example, students may collect information and data from their partners on a topic currently being covered in their curriculum to gain a multicultural perspective. Students may collaborate to write a poem or story together, or design a newsletter for distribution in both school communities.

For Those Taking Baby Steps

How to use E-mail



The common operations of e-mail include:

To: Here you enter the person's e-mail address

From: Your e-mail address (automatically filled in)

Subject: Type the subject of your message

CC: Carbon copy – you can send the same message to several people at once

BCC: Blind carbon copy – the recipients of your message will not know if the message was sent only to them, or to other people as well

Attachments: You can attach documents, graphics, sound, and even software files to your message

Most e-mail programs allow you to perform the following basic functions:

Compose: Write a new message

Send: Your message is sent to its destination

Receive: You can receive mail others have sent you

Reply: Respond to an e-mail you have received

Forward: Send a received e-mail message to another person

Save: Save an e-mail message to a hard drive folder or disk

Print: Print out e-mail messages

Address Book: Store and organize your frequently used e-mail addresses

Keypaling is an activity easily integrated into any classroom—even one with only one computer. By connecting students with their peers and encouraging them to communicate freely, keypaling is a powerful tool to explore cultural differences – and similarities – in a motivating and authentic context.

Ask an Expert

WILL A WORLD-FAMOUS EXPERT ON CHEMILUMINESCENCE who lives in Texas help a 12 year-old student in Harlem on his science project? One science teacher and her students have discovered that the answer is yes—*if you ask in the right way.*

A group of eighth-grade students were working on a science fair project and experiencing difficulty finding relevant information. Using a search engine, they found *The Chemiluminescence Home Page* of Dr. Thomas "Red" Chasteen, a chemistry professor in Texas with a special interest in this field. The students were pleased with the information, but returned to their teacher a few days later with two problems. First, the books listed on the web site were well above their reading level. Second, although they had learned a great deal about their topic, they still couldn't figure out an experiment to conduct for their project. Their teacher encouraged them to e-mail Dr. Chasteen to ask for assistance.

Having tried this tactic earlier in the year, the teacher was aware that experts do not like to be contacted with broad questions; students must formulate their questions in such a way to indicate that they have already done a certain amount of research, but are really stuck. The students were instructed to include in their e-mail:

- Their first names
- Their grade level
- Why they were interested in the topic of chemiluminescence (the previous year one of the students had worked on a project using bacteria that produce light, or bioluminescence.)
- How they had found the professor's e-mail (through his web page, which they enjoyed)
- The specific problems they had encountered
- Their teacher's name and her e-mail address

A few hours later, the students received a reply from the professor, including a lengthy description of an interesting experiment, safety instructions, and sources

for the needed chemicals. A few weeks later, his web site also had a new resource—a bibliography for young scientists. Disappointed that they did not get the result they were hoping for from their experiment, and dissatisfied with their teacher's explanation that getting a negative result in their experiments was not a failure but rather a means of learning more, they reported their findings (at their teacher's urging) to Dr. Chasteen. This is how he responded:

> David, Elvis, and Francisco,
> Ah, ha! You have done science. The key is learning that having a
> hypothesis proven incorrect is not bad. It is part of the process we call
> the scientific method. If you KNOW that something is incorrect, you can
> then proceed to find out what IS correct. Finding the optimum copper
> concentration via the use of your paper blocking technique was a stroke
> of brilliance! Congratulations!
> Also, congratulations on your efforts, your enthusiasm, your writing
> (I enjoyed reading it), and your brains. Keep up the good work!
> Also give my best to your mentor, Ms. Herzog.

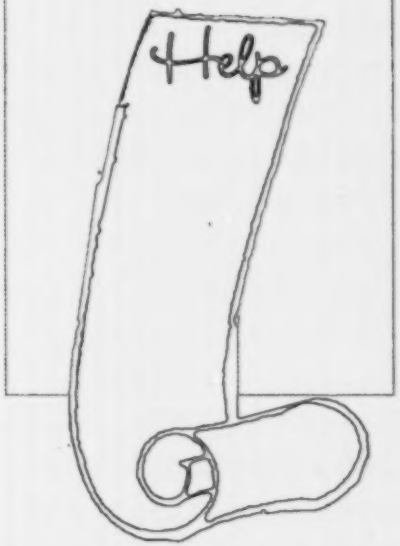
Their teacher shares her thoughts on this experience:

This kind of interaction is a science teacher's dream come true. Since that experience, many of my students have successfully received advice on their science projects from experts via the Internet. In some cases, the experts are only a few blocks away at a local college, while in other cases they are teaching at a university in Holland or conducting fieldwork in the Brazilian rainforest. The key to getting effective expert advice is for students to show the experts that they really share their interests. That means my job as a teacher requires making sure the students write to their experts carefully and respectfully. Students also need to follow up with their experts, explaining how they used their advice and what results were determined. This is what scientists actually do when they publish. I remind my students that they are smoothing the way for other students who may ask for advice in the future—from experts who have had a great experience helping young scientists in their investigations.

Joining Listservs

A LISTSERV IS A MAILING LIST THAT PROVIDES an online forum for discussing issues of interest to its members. There are hundreds of listservs dedicated to education-related issues. See a sampling of the major lists at: **http://www.teachersnetwork.org/book/listserv**

Listservs may be used to find information about textbooks or software for your class, to look for partners for online collaborative projects, or to discuss hot topics in your field of interest. Advantages of listservs include:



Timely, automated service
Biographies of recent Nobel Prize winners, or details of yesterday's Supreme Court ruling can be the basis for tomorrow's class discussion or cooperative learning activity. Much like daily newspaper deliveries, you can arrange for news summaries and digests to be automatically sent to your e-mail account.

Useful information from a variety of online sources
If you are interested in reading more, simply click on the link and you will arrive at the original source. Articles can be captured and downloaded to your computer or printed for distribution to a class or to colleagues.

Modest hardware and software requirements
Unlike web resources, listserv information is text-based and does not require fast modems or powerful computers. All you need is an e-mail account.

Ability to join or leave a list at any time
A simple e-mail message is all that is needed to subscribe or unsubscribe.

"Subscribe" and "Unsubscribe" are commands that have obvious meanings. Upon subscription to a list, you will receive an e-mail message that welcomes you to the list and gives you an outline of available commands. This message should be saved for future reference, since each list has its own set of commands. There are also different addresses used for administration of the list (used for subscription and sending information to the list) and replying to messages (reply to the entire list, or contact the individual that the message came from). You will also need the instructions to remove yourself from the list in case it becomes overwhelming, or you find out that the list is not what you thought it would be.

One of the key features of a listserv is that each subscriber becomes part of the resource. You may choose to "lurk" for a few days to observe the tone and content of

messages posted by other list members, but then jump in and introduce yourself. When each person makes a contribution, the true power of this technology is realized. Two teachers who have successfully used listservs to enhance their professional growth share their thoughts:

> *Over the past few years, we have grown to treasure the half hour or so that we spend each day with listservs. It is a time to nurture the inquisitive, the creative, and the expansive qualities within ourselves. Our profession requires us to resist ignorance, parochialism, and narrowness. Dealing with technology today is reminiscent of an old story about someone who wanted to attend a potluck meal but only had a bit of dried-up baloney in his refrigerator. He decided to go anyway. Luckily, on the way, he ran into a family with a large meal complete with all the fixings. There was plenty of food for everyone, including the man with the scrap of food. We face the same decision in our professional lives. We may think that we don't have enough for a fine dinner, and so we stay home in isolation. But if we venture out with what we do have, we may run into others willing to share their technology "plate," thus allowing us to pool and share our resources. The Internet gives us the chance to cooperate, communicate, and learn from each other. It would truly be a shame not to grab that opportunity.*

Connecting to Students, Parents, and the Community

E-MAIL IS AN EFFECTIVE WAY TO SEND STUDENTS worksheet templates, suitable web sites for research, and caring messages with concerns or praise. Once you begin integrating e-mail into your daily classroom routine, don't be surprised to receive periodic messages from your students. Students who are otherwise shy might find this tool an easier way to seek answers to their questions, as this teacher reports:

> *The interactive nature of the Internet provides students with a sense of participation which is broad, diversified, and empowering. An ESL class of mine e-mailed Rudy Crew, the then Chancellor of the New York City Public Schools, after having read an article in which he was criticized for his school budget allocation. My students were thrilled when they checked their e-mail and found personal responses from the Chancellor.*

Parents may also be easily contacted with reminders about upcoming school events, copies of exemplary student work, or permission forms to print out and sign. Since not all families will have access to e-mail, be sure to follow up with printed copies of all e-mail correspondence. Many teachers decide to create a school or class web page to

showcase student projects, which is another way to bring the community into the classroom. As this teacher writes, students are motivated when they realize that there is a real audience for their work:

> *We began receiving e-mails to the address posted on our class web site. At first, the e-mails were from parents and other relatives, then from community members. The students were thrilled with each new letter we received. Many of the e-mailers offered suggestions, and we democratically decided on which ones we wanted to incorporate. Soon our site's scope began to expand, and people from outside the community began to e-mail us. The students were growing more and more excited. They also began to realize how far their work was reaching. Students continually made revisions and refinements to their writing, using the map to discover the location of our latest e-mailers, even graphing our daily and weekly "hits."*

Chat Icons

Happy	:)
Sad	:(
Big smile	:-D
Wink	;-O
Frown	:-(
Crying	:'-(
Screaming	:-@
Yawning	|-O
Tongue-tied	:-&
Bummed out	;-c
Surprised	:-o
Steamed	~:-|
Uh-oh	:-O
Raspberries	:-P
Clown	*:o)
Angel	O:-)
Dunce	<:-|

Netiquette Primer

1. Capital letters means you are SHOUTING.
2. Be clear in your messages; it's easy to cause a misunderstanding.
3. Keep your signature short.
4. Use a spell-checker.
5. Don't engage in online arguments. This is called "flaming."
6. Always include a brief subject describing your message.
7. Don't forward personal mail without author's approval.
8. Don't forget to add your name to the end of a message.
9. Never assume your messages are private.
10. There is a human being at the other end, so don't forget to be nice.

NETWORKING POSSIBILITIES AND CHALLENGES

ED GRAGERT is the director of International Education and Resource Network (I*EARN-USA), a global telecommunications network for youth ages 6-20. Under his leadership since 1990, I*EARN has expanded to 4,000 schools in 93 countries. You can find more information on their web site: **http://www.iearn.org** Here are his thoughts on networking, online collaborative projects, and international education.

TEACHERSNETWORK: What are the networking possibilities that you are seeing between students and teachers, and among schools, due to the Internet?

ED GRAGERT: Many educators have written about the research benefits of the Internet, which gives teachers and students access to a global resource library that is truly without precedence in history. Yet, to see the Internet solely as a larger, better, more visually-pleasing library, is to miss its most important value—its ability to link humans for international collaborative learning and action. Over the past 12 years, we have seen that it is the peer interaction across borders, languages, cultures, and time zones that stimulates students and teachers to be active participants in the learning process.

Our objective is to prepare students to be motivated and active participants in their world. This objective is increasingly being met: students in Belarus post their folktales on the Internet and, in turn, are treated to other students' interpretations of local folktales from their own countries, providing a unique window into new cultures, customs, traditions, and beliefs. Middle school students in Australia research existing conditions in their wetlands, post them on the Internet as part of I*EARN's Wetlands Project, and then reap the benefits of similar research done by students in Uganda, the United States, and Romania. Students involved in such projects are able to communicate, via e-mail and online discussion forums, with teachers, experts, and peers around the world.

TEACHERSNETWORK: How do students benefit from participating in online collaborative projects?

ED GRAGERT: Teachers provide real classroom testimonies, on a consistent basis, that students are more motivated to learn as a result of engaging in online collaborative work. Teachers and students both report that online projects give practical applications for language and global studies courses. Language teachers have found improvements in language skills acquisition in courses where an online telecommunications exchange has been integrated into the curriculum. Similarly, teachers who are focusing on a country, region, or culture as part of a global studies course are quick to realize the potential of linking their students with peers in the regions under study. Authentic interaction gives a sense of realism and relevance to a culture that is often initially viewed as distant, peripheral, and esoteric.

What we have seen initially in language and global studies classes is now visible in science, art, literature, health, math, and other classes. Online collaborative project work heightens student interest in these subjects as well, resulting in recognition that everything we do has an international connection. As economic and political systems become more closely integrated worldwide, U.S. students need to be prepared for a new century in which worldwide interaction will be a daily occurrence. Online collaboration provides a safe and educationally sound environment for cultural exploration, while developing a comfort with working with a diverse community.

TEACHERSNETWORK: What are the challenges educators may face as they adjust to teaching in an online environment?

ED GRAGERT: School administrators and teachers face a number of challenges that must be addressed, many of which are familiar to educators involved in online initiatives. The challenges include shortcomings in equipment, training, and assessment. Online technology must be accessible and convenient to every teacher—located as close as possible so it can be used at appropriate moments in class. While U.S. schools increasingly gain high-speed bandwidth and videoconferencing capabilities, in most countries e-mail is the maximum level of technology available. And the gap is widening. Attention must be focused on coaching educators how to teach collaboratively in an online forum. Many educators and their students will need to learn to feel confident in a classroom in which students assume some independent responsibility for their own learning through interactive discussions and cross-cultural exploration. Finally, there is a need for research on the academic impact of online collaboration on student performance. At a time when teacher accountability is based increasingly on exam scores and the ability to meet state standards, there are only a few examples of how state curriculum standards are addressed through this mode of teaching and learning.

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CHAPTER 3
How to Teach the Art & Science of Conducting Research Online

Getting Started: Teacher-Guided Research

STUDENTS BELIEVE THAT USING THE INTERNET will make their work easier, and it will eventually, but first comes the practice of reading for information and meaning. The Internet contains a wealth of knowledge, but in order to discover it students need to think about what information they are seeking, where it may be located, and how they may best conduct research without wasting their time.

In the following section, an elementary technology teacher answers the often-heard question from her colleagues:

"Okay, so I have the Internet in my classroom, now what?"

✓ **Internet research complements the other research methods used in teaching as part of comprehensive skills development.**

Once you have decided upon a topic of research, you will need to discuss with your students where they will begin their search. The library is still a great place to develop research skills. Next, talk

about information that doesn't change daily, accessible from encyclopedias, books, or CD-ROMs. With a second-grade research topic on panthers, students will find much information from print resources, but with the CD-ROM, they will actually *hear* the panther purr. When you add the Internet component, students can experience an interactive web site tracking a panther during its daily hunt. Try that with your book!

Use the Internet for grade-level research projects.

To begin with, try using a good search engine to locate four or five web sites appropriate for the particular grade level you are addressing. A teacher-constructed worksheet is best for guiding students through the sites you have chosen. It helps to include questions for students to answer at each site. The surprise of the Internet comes when the students actually hear the sounds an insect makes, observe an animated life cycle of an insect, and read about the migration pattern of certain insects as they are happening in "real time."

The power of the Internet comes to life with extended activities, like asking a challenging question, not finding the "answer," then reaching out and e-mailing the question to an expert in the field (in our insect example, that may be an entomologist). The ability to connect topics studied in school to their relevance in the real world is a great benefit of Internet research.

Design a web page on the research topic.

If you have ever searched for a particular topic on the Internet, you know it can sometimes take a long time to locate just the right web site. Not that you can't find the right site, but you are led astray by other sites with information you have been dying to find. When students conduct searches on their topics, they may inadvertently end up at web sites inappropriate for their reading or viewing. If students will be doing additional research on their own, use kid search engines instead of the adult versions. The kid sites are filtered to a certain degree.

To save time, provide students with the best filtered sites possible--those selected by the teacher. Using a web editor such as Netscape Composer or Claris Home Page, design a simple web page that includes links for the students to access their research information. This web page can be uploaded to the school server. As the school year progresses, continue to compile links that will be useful to you and your students.

Help students retain the results of their research.

Teach students how to bookmark their most useful sites, keep an annotated log of web site addresses, and write down new facts as they find them.

At some point, you may want to publish your students' work on a web page, but get parent and student permission first. Studies have shown that students are more invested in their learning when they have a wider audience to whom they present their work. The Internet provides the widest of audiences, from your local school community to places around the world where students' relatives may live. What better way to teach communication skills than to invite people to view the students' work and send their comments.

Internet Search Tips

The following tips should help make your searching experience a little more enjoyable and productive:

1. **Be specific.** Detailed search terms work best. Typing "baking" in the search field will overwhelm you. However, typing "baking apple pie" will bring more specific, relevant pages.
2. **Watch your case.** Use proper uppercase and lowercase whenever possible. Searching for *NOW* will bring information on the National Organization for Women. Searching for *now* will bring all kinds of mixed returns.
3. **Put phrases in quotes.** "I have a dream" gets you straight to Martin Luther King Jr.'s speech.
4. **Use Boolean operators.** These are special words that help you focus and refine your searches. Searching *Dallas AND Cowboys* will bring information only on the football team or *cowboys* from the *Dallas* area. Searching *Dallas OR Cowboys* will bring any/all information about *Dallas* and any/all information about *cowboys*. Searching *Dallas NOT Cowboys* will bring information only about *Dallas* without anything about *cowboys* or football.
5. **Add or subtract search terms.** Using (+) immediately in front of a word indicates that word must be found in returns. Using (-) in front of a word indicates that word should be excluded from returns.
6. **Revise your search.** If your original search doesn't yield exactly what you want, revise your search by adding new search terms or changing your Boolean operators.
7. **Use the pipe (|) symbol.** Typing *computer| laptop* will return only those pages that include the word laptop. This helps to eliminate useless returns.
8. **Use your BACK and FORWARD buttons.** These help you avoid getting "lost" as you go from one linked web page to the next.
9. **Bookmark favorite sites.** This allows you to save useful sites and quickly return to them later.

Internet Speed Tips

MODEM Your modem speed greatly affects how fast you can surf the Internet or download software. A 56K or faster modem is recommended, and DSL is even better.

TRAFFIC JAMS Avoid peak usage times such as early evening. Schedule long downloads for off-peak hours, such as overnight.

RELOAD If a page doesn't seem to want to load the first time you type in the URL, try hitting your browser's Refresh/Reload button.

TURN OFF IMAGES Images take the longest to load but may not be necessary all of the time. To view a web page with the text only, temporarily turn images off. There may be an Images button on your browser's toolbar or you may have to go to the View menu to turn images off.

STOP BUTTON Hitting your browser's Stop button will often load everything on the page but some of the larger images. If you don't get all that you need, you can always hit Refresh/Reload.

CACHE This is a storage area on your computer's hard drive. When you surf the net, your browser stores web pages in the cache—up to the limit you set. If you have room on your hard drive, try upping your browser's cache limit (usually found in a Preferences or Advanced settings menu).

Here is a quick way to get started with your students.

Try this scavenger hunt, created for fourth-grade students but adaptable to all grade levels. The goal is to demonstrate to students how we can use the Internet to get the most current information, as opposed to using printed materials that may be out-of-date. This hunt contains links to several resources in our hometown and state, so you may want to change them to represent your locale.

BEST COPY AVAILABLE

Scavenger Hunt for Grade 4

Wells Elementary School • Designed by Cheryl Oakes

At each site, answer the questions and write down the name of the site, the sponsoring company or organization, and the date the page was made or modified.

What is today's temperature, wind speed, and weather? Go to: **www.wunderground.com**
Once you are on the site, type the name of the town " Wells."
Write down the temperature, wind speed, and weather for today. Remember, spelling counts.

TEMPATURE _____

WIND SPEED _____

NAME OF PAGE _____

SPONSOR _____

DATE OF PAGE _____

What is the best-selling book this week? Go to **www.amazon.com** to find the Top 100 Amazon best sellers. Then write down a best seller and author. Is the book available or back-ordered?

THIS WEEK'S BEST-SELLING BOOK _____

TITLE AND AUTHOR OF ONE OF THE TOP 100 BEST SELLERS _____

BOOK IS AVAILABLE _____ **BOOK IS BACK-ORDERED** _____

NAME OF PAGE _____

SPONSOR _____ **DATE OF PAGE** _____

What is the headline for today? Go to: **www.portland.com**

HEADLINE FOR THE DAY _____

NAME OF PAGE _____

SPONSOR _____

DATE OF PAGE _____

What is the "Demo of the Day?" Go to: **http://nyelabs.kcts.org/flash_go.html**
Is this a project that you could do at your home?

DEMO OF THE DAY _____

COULD YOU DO THIS PROJECT AT HOME? _____

NAME OF PAGE _____

SPONSOR _____

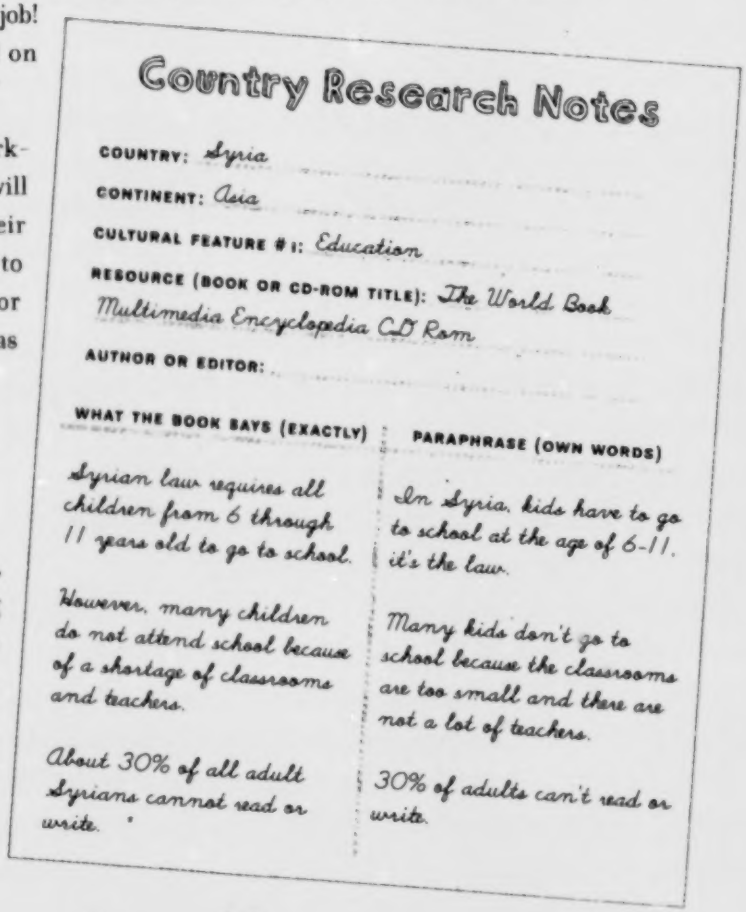
DATE OF PAGE _____

Transforming Research Notes into Multimedia Presentations

NOW, YOU AND YOUR STUDENTS HAVE FIGURED out how to research using the Internet. The students have fistfuls of neatly printed information and some beautiful graphics, which they gleefully present to you announcing that they are "done." How do you help them see that those pages are only the beginning? It is time to progress to more challenging activities, such as analyzing, synthesizing, and evaluating that research to transform it into a quality multimedia project.

But first . . . recognize the effort expended to do the research, particularly by those new to navigating the Internet. Although students have successfully conducted research using sites found on their own, they are not "done," yet they have accomplished something different from checking a book out of the library. Make it clear to students that the research is but one important step towards completing a project that is truly their own work. Hand back their research and say, "Great job! Now you are ready to get started on your double-column worksheet."

The use of double-column worksheets and index card models will assist students in organizing their research into key points, leading to the construction of a web page or other presentation formats such as stacks or slides.



Country Research Notes

COUNTRY: Syria

CONTINENT: Asia

CULTURAL FEATURE # 1: Education

RESOURCE (BOOK OR CD-ROM TITLE): The World Book Multimedia Encyclopedia CD Rom

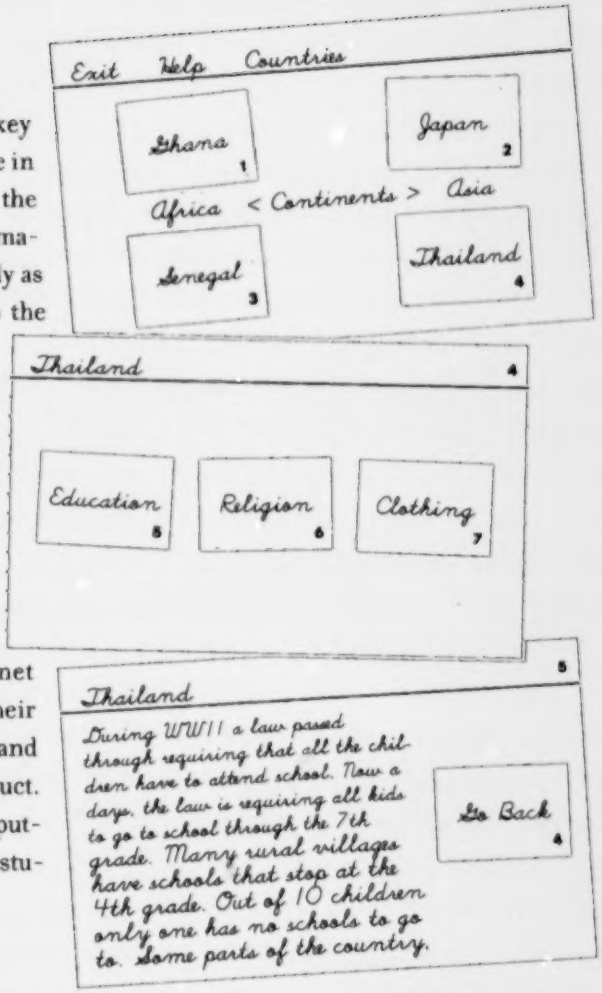
AUTHOR OR EDITOR:

WHAT THE BOOK SAYS (EXACTLY)	PARAPHRASE (OWN WORDS)
Syrian law requires all children from 6 through 11 years old to go to school.	In Syria, kids have to go to school at the age of 6-11. it's the law.
However, many children do not attend school because of a shortage of classrooms and teachers.	Many kids don't go to school because the classrooms are too small and there are not a lot of teachers.
About 30% of all adult Syrians cannot read or write.	30% of adults can't read or write.

The Double-Column Worksheet

THE DOUBLE-COLUMN worksheet, a simple form with a line dividing the page down the middle, helps students break down the process of incorporating research into their own work by focusing them on paraphrasing. Students review

their Internet research and identify key points of information they wish to include in their projects. The top of the sheet asks the students to identify the source of information. They then copy the key points exactly as they appear in the research source into the left-hand column of their worksheets. In the right-hand column, students must restate the point in their own words. This column will be the raw material for their projects.


Exit Help Countries
Ghana 1
Japan 2
Africa < Continents > Asia
Senegal 3
Thailand 4
Thailand 4
Education 5
Religion 6
Clothing 7
5
Thailand
During WWII a law passed through requiring that all the children have to attend school. Now a days, the law is requiring all kids to go to school through the 7th grade. Many rural villages have schools that stop at the 4th grade. Out of 10 children only one has no schools to go to. Some parts of the country.
Go Back 4

The double-column worksheet is a useful tool created either on paper or on the computer. Students can cut and paste research facts from the Internet directly into a word document, type their own words in the right-hand column, and transform this text into the final product. However, if you do not have enough computers for everyone, you may choose to have students complete the worksheet by hand.

The Index Card Model

ONCE STUDENTS HAVE SUCCESSFULLY put the key points of the research into their own words, they are ready to incorporate the research into a new media project. However, because the lure of fancy computer tools can easily lead students to create projects that favor form over content, try this technique:

1) Provide students with a set of 4" x 6" index cards and 1" x 2" post-it notes.

2) Have students create an index card model of exactly what they will place on the first page of their project. They use the small post-it notes to identify placement and function of hyperlinks and navigational buttons.

3) Number each post-it note to correspond to an index card with the same number, representing the page to which a visitor will be transferred by clicking on that hyperlink.

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4) Assist students in creating each page, drawing heavily from the paraphrased text they have already entered into the right-hand column of their double-column worksheet.

5) Demonstrate how students can experiment with the organization and presentation of their ideas and research by rearranging their index cards and post-it notes.

6) Proceed to the computers once students have presented a complete, organized plan for their projects. Depending on grade level, computer proficiency, software availability, and time, students will transform this work into an interactive, multimedia presentation such as a web page, HyperStudio stacks, or PowerPoint slides.

One of our teachers in the field tried this method, and the results were wonderful:

When I required my sixth-grade social studies class to organize their research on countries in Asia and Africa using the methods described above, a few were frustrated by what they saw as obstacles to using the computer. However, the majority of my students actually enjoyed demonstrating their ability to interpret and organize their research. The goal of moving to the computer also helped to focus many students on the task of working with their research. The extra preparation time was more than made up for by the efficient use of actual computer time—a key result in a classroom with limited computer availability. Finally, the students' double-column worksheets and index card models helped ensure that the computer was a tool to enhance the lesson rather than the sole subject of the lesson.

Search Engines: The Devil In Disguise

by Hope Reichbach

A true tale from a seventh-grade student assigned a research project without any teacher guidance.

One evening I was on the Internet, searching for data for my science fair project on water pollution in New York City. I always use the search engine "Yahoo," so naturally I went to the search bar and typed in "NYC Water Pollution" hoping to find some links. No matches. Then I tried "NYC Water" which brought me two matches to commercial sites for water filters. Next I tried "NYC Pollution." Everything about pollution came up—air, water, noise—but nothing about New York City. Actually, one match did come up: "NYC, the Best Place to Vacation." Although I could agree with that, it didn't exactly help. By now I'd decided that my trusty search engine wasn't working, so I went to AskJeeves. I did the same searches, and the same matches came up. I was getting very frustrated and a little worried. I tried three more search engines before arriving at Homework Central, which had some categories where you can ask teachers questions. There was no real science category, though, and "no teachers were available at the moment." I left that site and went to Homework Help, and the same thing happened.

After that experience, I was so frustrated that I forcefully turned off the computer and stormed downstairs in tears. I worked on my math homework until my parents got home, at which point I ran into my mother's arms and cried that I had searched for two hours unsuccessfully and was about to go mad. I needed my sources for the science fair project quickly because the bibliography was due in three days. My mother told me to go to bed, and the next day she would see what she could do.

When I came home from school the next day, my mother had done some research and found very helpful information directly from the web sites of the NYC government and the Sierra Club – two organizations she thought would have information about water pollution in New York City. Most kids would never think of going to these sites, or even know that they existed. I think that teachers should give their students helpful web sites so that kids can actually get something done. When we are given projects, specific web addresses should be mentioned so that kids don't have to go through what I did.

Travis Olson's Guide to Becoming Comfortable with Technological Tools

Play. Play. Play. My biggest recommendation to anyone who is new to computers or the Internet is to take the time to play and explore. Play with the computer: try left-clicking, right-clicking, and double-clicking on the various icons in front of you. See what happens. Open programs, and see what you can do. Provided that you don't start deleting, there is very little you can do to cause problems that aren't easily fixed. The more you play, the more comfortable you will become.

The same goes with the Internet. Open your browser, probably either Netscape Communicator or Internet Explorer. Start clicking on the various buttons and see what happens. Type different addresses into the address bar. Go to various search engines and look for information on your favorite hobby. Play with the sites. Try clicking on the various headings and links. Try left-clicking on the pictures. Read the menus that pop up. Keep track of the sites that you like or think will be useful.

Use Help Almost all programs include a help menu. You can almost always find help along the top row of words, at the far right end. After clicking on help, the first or second choice will usually lead you to contents and index. Look through the various sections of the contents. Most programs will give you very good starting points, and you should be able to find enough information to get yourself going. If you are trying to do a new thing, use the index. Type in a key word; if the program doesn't find anything, try using similar key words.

Ask Around Your colleagues, friends, and students may be able to help you get started. Tell them what you are trying or hoping to do. They may be able to answer your questions. They may also be able to recommend a web site or book that can help.

When my classroom received a new computer with Windows '95, I had a student sit down with me to help figure things out. Not only did I learn how to use the computer, but I developed a strong bond with this student. It was time well spent.

Find Tutorials There are tons of tutorials available on the Internet. Ask the people around you if they know of any good tutorial sites. You can also use a search

engine to search for tutorials on the program you are trying to learn. Look at various tutorials. Read through them. If you don't understand what the tutorial is trying to explain, go to a different one. Once you have found one you like, print it out. Follow the tutorial step by step. Once you have completed it, file it and look for another. Keep repeating this process until you feel comfortable with the program.

Practice Just because you have done something once hardly means that you know how to do it. Once you have done something on the computer, repeat it. Keep going back to programs; play some more; repeat the tutorial. Keep doing this until you are comfortable.

Find a Mentor I have already mentioned that I found a student to help mentor me. The help I received from this student was immeasurable. Turn to someone that you enjoy talking with, someone whom you know is capable of doing the things that you want to learn. Arrange a time for the two of you to sit down together and have this person show you what you want to know. Then, switch positions—have him or her watch you as you complete the steps yourself. Write down the steps as you do them so that you can come back and practice them later.

Apply Your Knowledge Knowing how to do something isn't worthwhile if you don't have the opportunity to use it. As you start to feel comfortable with the various technologies, use your knowledge to your benefit. If you get stuck, try using the help menu, asking around, or turning to a tutorial to get you over the hurdle. If you can't get over the hurdle, be creative. Try to circumvent it by finding a new way to complete your task. Your knowledge will become more and more beneficial as you find more and more practical uses for it.

Don't Give Up Learning new things can be frustrating. If your computer starts to act strangely, restart it. If you find yourself wanting to push the computer out the window, walk away and come back later. The more you become frustrated, the more frustrating everything becomes.

Praise Yourself Take a moment or two and focus on what you have accomplished. Keep a journal of the various steps you have learned. Set a goal for yourself. When you have reached your goal, reward yourself. Remember that you have already taken a huge step.

CHAPTER 4
How to Teach to Diverse Learning Styles

COMPUTER-ASSISTED INSTRUCTION ADDS LIFE, variety, and creativity that benefit both students and teachers. Technology enhancements are especially useful when planning instruction for students who need extra help. Students may have learning disabilities, or physical impairments; they may be English as a Second Language students, or they may simply be slow learners. The resources of the Internet and new media are rich enough to provide challenging instruction for all categories of students, targeting their individual learning styles and intelligences. A student with strong logical intelligence will enjoy the challenge of database, spreadsheet, and strategy game programs, whereas a student with dominant spatial intelligence will gravitate toward draw and paint programs, multimedia presentations, and graphic design. By varying your instructional strategies, you will be sure to target the unique learning styles of each student.

These guidelines will help you implement a successful program inclusive of all learners in the classroom:

1. Be creative. The visually rich material on the Internet is particularly useful in attracting and motivating students. Combine web activities with audiotapes, videotapes, electronic games,

and CD-ROMs to create lessons that meet specific needs. Use animated graphics, color, and sound to illustrate concepts.

2. Develop your own program. It is highly unlikely that you will find one software program, web resource, or textbook that can meet the needs of all your students. Order demo copies, ask colleagues for suggestions, and link to your favorite web sites to compile your own program customized for the variety of learners in your class.

3. Work together as a team. Research the Internet along with students to identify resources that can be used as supplemental material. This exercise will help build confidence in challenged students, boosting their self-esteem by including their ideas and opinions in curriculum planning.

4. Allow students to work at their own pace. Take advantage of the non-judgmental nature of computers; they do not penalize errors and delayed responses. Computer and Internet-based assignments offer students the opportunity to continue working outside of class. You may also structure tasks to allow for different solutions depending on the skills and strategies employed by the students.

5. Review frequently. Ask students for regular feedback to be sure that lessons are thoroughly understood. Use a variety of communication tools such as e-mail, bulletin boards, and chat rooms to involve students in expressing their attitudes and feelings.

6. Make learning meaningful. Show students connections between technology skills and their real-world applications. Learning through technology is a great equalizer.

Check out these creative technology-infused programs developed by three teachers looking to spice up their students' —and their own—daily routines:

Targeting Multiple Intelligences: Teens Teaching Teens

As a seasoned health teacher for 21 years, teaching was becoming stale. I needed to infuse some excitement into the curriculum. Junior high students are often difficult to teach and reach because of their developmental stage. Knowing that teens are more engaged with a hands-on approach, technology seemed a good solution.

This was the thinking that motivated one teacher to develop "Teens Teaching Teens,"

a multi-faceted Internet project for eighth-grade students. In this class, drug education is a major component of the curriculum. Rather than listening to information provided by the teacher and the textbook, each student works in a group to conduct research, prepare a PowerPoint presentation, and assume the role of the teacher to instruct the class on their assigned drug. Each presentation must cover drug history; plant type; countries of origin; medical uses; how the drug affects the nervous system; how the drug is used; street names; signs of use; physical, psychological and emotional effects; problems for society; withdrawal symptoms; and other facts, statistics, or laws.

Expected student outcomes from this unit include:

- **To become familiar with the Internet as an educational tool.**
- **To understand the consequences of drug use.**
- **To reinforce for each other drug use is a bad choice.**
- **To better appreciate the role of teacher.**
- **To become better at communicating what they have learned and, in doing so, reinforce their own content knowledge.**
- **To learn the use of PowerPoint as a multimedia presentation tool.**

"Teens Teaching Teens" reaches a diversity of learning styles. Howard Gardner's multiple intelligence theory is evident throughout this project, such as:

- **linguistic and logical intelligence—through research, organization of notes into a PowerPoint presentation, and creation of a review sheet and quiz for peers;**
- **visual and kinesthetic intelligence—through the manipulation of technology applications;**
- **interpersonal intelligence—through collaborative group work; and**
- **intrapersonal intelligence—through the relation of key concepts to the students' own lives.**

The variety of activities offered, and the ability of each student to contribute to the group based on their individual strengths, ensures an interesting and successful learning experience for all.

Linking Curriculum, Technology, and Special Education Students

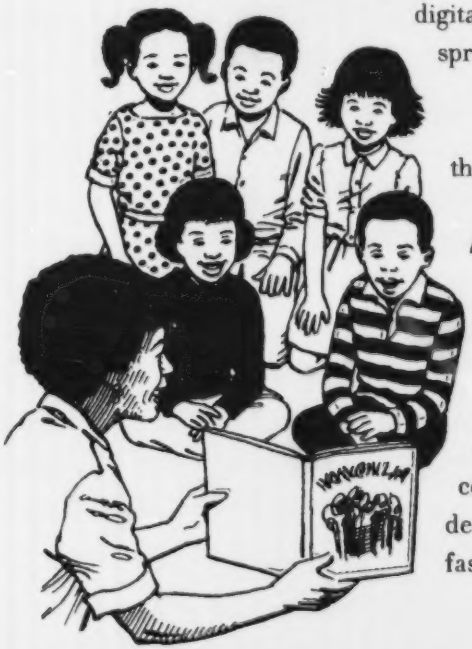
I am honored to teach the most challenging student population. I work in a self-contained special education classroom with students who have been diagnosed with severe behavioral disorders. Previously, I had witnessed students being "contained and controlled" with voluminous

work packets filled with mind-numbing remedial work. All too often, students had been warehoused year after year in self-contained programs with little academic challenge or behavior modification. Students were frustrated, disillusioned, and disenfranchised.

Students with behavioral disorders have the highest drop-out and failure rates of all students with disabilities. After questioning how her students were being educated, this teacher realized that she needed to implement change through design of her own program. Her philosophy: students were to be re-educated and re-integrated back into the mainstream. Her strategy: technology would become the tool for students to "buy into" academic achievement, to develop reading and writing skills using higher order critical thinking skills, and to connect their learning to the real world of work. Academic and behavioral excellence were expected.

How it Works

Technology is incorporated into the daily routine of the classroom, and becomes the vehicle by which the students find information and construct knowledge. They are taught how to use all the technology resources and to use these tools for research, documentation, and execution of projects in a variety of subject areas. Students increase their reading, writing, and information literacy when they search the Internet for primary and secondary historical documents and use a word processor to write and publish reports. They reach beyond their neighborhoods and cultures to read newspapers and books online. They use complex sequential order skills to scan or digitally record documents, projects, or artwork. They use spreadsheet software to track their stock portfolios, after consulting online stock reports to record gains and losses. They incorporate aesthetics and design when they create web pages or use photo software.



Alternative Assessment: The Portfolio

Every student in this class has an IEP (Individual Education Plan). Advancement from grade to grade had always been largely determined by norm-referenced, standardized test scores. By instituting portfolios, students are moved to the center of the assessment process and are able to demonstrate mastery of concepts in an alternative fashion. They become more actively involved in

knowing what they have learned by participating in self-reflection, and by selecting items for their portfolios as evidence of learning.

Each student creates a portfolio using a PowerPoint template. They select two assignments per month that represent intellectual growth to be added to the portfolio. They also add a self-reflection page indicating which goals they have met. Their peers review their selections and provide feedback. Students print and bind their portfolios, which are attached to their IEPs for use as alternative assessment for their present levels of performance. The students then transform their portfolios into multimedia presentations, customized with backgrounds, voice recordings, audio-captured music, film clips, and downloaded images from the Internet. Throughout this process, students are actively engaged in reading, writing, reflecting, and selecting exemplary work.

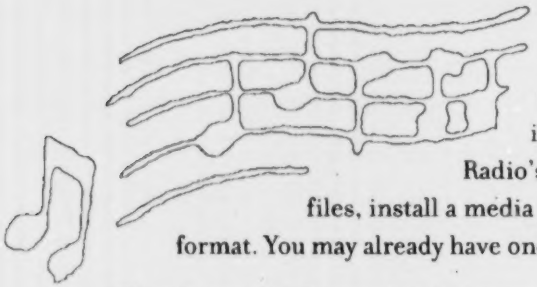
Their teacher is pleased to report:

I started my program with six donated and slightly under-equipped pcs, and just enough money to put software on them. There continues to be little money for my program, and I have supplemented these resources with personal donations of a desktop computer, a laptop, a digital camera, a scanner, a portable hard drive, and several software programs. I am responsible for all maintenance, and my students quickly learn that our tools are not toys. By allowing my students access to this technology, I have dispelled the myth that these students destroy anything they have access to, and that technology resources would be better utilized by mainstream students.

Reaching an Audio Learner with MP3 Files

Students have figured out how to download all kinds of music files from the Internet, usually in the form of MP3 files. MP3 files take memory-intensive sound files and remove all of the excess noise; the resulting file is approximately 10% of its original size. The 40 MB file is now 4 MB, and this has a surprisingly small impact on the quality of the sound. College students invented this way of transferring music files because raw audio files (40 MB files) were too large to transfer easily, but 4 MB MP3 files were much more efficient. There are many popular MP3 sites on the Internet.

So, what does that mean for education? This is an exciting medium to reach auditory learners. Teachers have the ability to transfer readings, interviews, and other spoken assignments via e-mail to students. Folk music and cultural exchanges enrich studies of other countries and their customs. ESL students listen to authentic conversations to study the nuances of American pronunciation and speech patterns. Many



sites offer different types of MP3 files, including selections from National Public Radio's "Radio Tales." To be able to listen to these files, install a media player application that supports the MP3 file format. You may already have one on your computer.

What do you do when you've discovered these treasured files and find out that there are more available than you could ever have imagined?

- **Make sure that you find reputable sites from which to download files. This will reduce your risk of copyright infringement.**
- **Make sure to have plenty of room on your hard drive to store your downloads.**
- **Remember that when you start to download, it will still require some time, so plan on using the computer with the fastest Internet connection to maximize your time.**
- **Plan how to organize the files on your hard drive before you begin. Decide if you want to organize them by subject, by author, or by date. This will save you a lot of time when creating your lessons in the future.**
- **Scan all files for viruses before opening them.**
- **If you want to have the ability to create your own MP3 files, you'll need a pro gram called a "grabber" or "ripper." This software uses tracks from CD's and converts them into the MP3 format. If you want to record spoken voice files, simply use the microphone that is part of many computers. On a PC these files are usually saved as WAV files and can be converted easily with MusicMatch or other software.**

With a little creativity and time well spent, teachers and students can create multimedia lessons that will have even the least motivated student in your class hooked on learning. Digital audio will dominate the world of your students in this decade—if it hasn't already. Teachers who harness these skills and explore them in the classroom will be expanding learning opportunities for all students. Let's rock!

For more examples of technology programs designed specifically for students with special needs, see the Special Education and ESL sections of the TeachNet index. Go to: **http://www.teachersnetwork.org/docs/NewYork/project/index.htm**

For more information on multiple intelligence theory, we recommend Howard Gardner's ***Multiple Intelligences: The Theory in Practice*** (BasicBooks: NY) 1993.

Internet Terms

BOOKMARKS- used to store web site URLs on your computer.

BROWSER- software program installed on your computer that enables you to view web pages. Examples: Netscape Navigator, Internet Explorer, Mosaic.

CHAT- a way of communicating in real time (live) with other Internet users.

DOWNLOAD- to transfer information from a remote computer to your own computer.

E-MAIL- messages sent instantly from one computer to another.

FREEWARE- programs that can be downloaded from the Internet for free use.

HOMEPAGE- the cover page of a web site. Introduces the user to the purpose of the site and often provides a table of contents.

HTML (Hypertext Markup Language)- behind-the-scenes programming language used to author a web page.

ISP (Internet Service Provider)- the vehicle that connects you to the Internet. Usually, you are charged a monthly fee. Examples: AOL, Prodigy, EarthLink.

KEYPAL- a penpal who communicates via e-mail.

LINK (hyperlink)- a word, phrase, or image that, when clicked on, sends users to another document. You can usually tell when you are on a link because it will be underlined, a different color, and/or your cursor will turn into a hand.

LINK "ROT"- term used to describe the frustrating and frequent problem caused by constantly changing URLs due to reorganization or discontinuation of a site.

MAILING LIST/LISTSERV- topic-specific discussions to which you may subscribe. Any time you send a message to it, all members will receive it via e-mail. Likewise, every time another member sends a message, you will receive it.

MODEM- equipment used to connect your computer to the Internet via your telephone line. Usually, the modem is internal.

NETIQUETTE- rules to follow when online. For example, TYPING IN ALL CAPS is not good netiquette because it appears that you ARE SCREAMING!

PLUG-IN- a program that expands the capability of your web browser. Popular plug-ins include Shockwave (for sound and video) and Real Audio (for audio broadcasts).

SEARCH ENGINE OR **DIRECTORY-** used to find information. Web sites are grouped into categories. Searches are conducted using keywords or questions. Examples: Yahoo, AltaVista, AskJeeves.

SHAREWARE- programs that may be downloaded from the Internet for free, often for a trial period of 30 days, at which time the program stops working. Or, some programs offer "optional" fees.

UPLOAD- to transfer information from your computer to another computer.

URL (Uniform Resource Locator)- the unique address of a web document. Usually starts with http://.

CHAPTER 5
How to Design WebQuests

What is a WebQuest?

WEBQUEST IS A TEACHER-DESIGNED, inquiry-oriented activity in which some or all of the information that learners interact with comes from resources on the Internet. A WebQuest provides a clear structure and sequence for student learning that involves and excites the students as they critically examine a problem or issue. WebQuests also:

- **engage students in relevant and interesting tasks,**
- **support learners' thinking at the levels of analysis, synthesis and evaluation,**
- **involve transformation of information,**
- **use pre-determined resources from the Internet and other materials enabling students to focus on using information rather than finding information, and**
- **can be short or long-term in duration.**

The WebQuest was first developed by Bernie Dodge and Tom March while working with teachers in California in the mid-1990's. The WebQuest model has been widely acclaimed, and is currently used as a teaching and learning tool in instructional technology programs worldwide.

How is it used in the classroom?

A WEBQUEST IS SIMILAR TO ANY other kind of lesson, except your time commitment is greater in the preparation stage. During the WebQuest, your role is that of a guide. You will be required to orient your students, present them with an inquiry-based

task, provide them with resources needed to complete the task, explain how the task will be evaluated, and then summarize and extend the lesson.

What Does a WebQuest Look Like?

There are six parts to a WebQuest. They are:

1. An **INTRODUCTION** that sets the stage and provides some background information.
2. A **TASK** that explains the goal of the WebQuest.
3. A description of the **PROCESS** the learners will go through in accomplishing the task. You will need to break down the process into clearly described steps. Provide guidance on how to organize the information through guiding questions, concept maps, timelines, or cause-and-effect diagrams.
4. A set of **RESOURCES** needed to complete the task. Many—though not necessarily all—of the resources are a crucial part of the WebQuest when it is designed. The resources include information found on the Internet, such as experts to contact via e-mail, interview transcripts, video conferencing, or searchable databases. Books and other documents which are physically available should also be listed. By providing these resources, students do not wander aimlessly through cyberspace; they can focus on using the information rather than finding it.
5. An **EVALUATION** that is clearly laid out for students before they begin the process. Assessment criteria are often conveyed through the use of a rubric. Decide what you want your students to accomplish throughout the WebQuest, as well as the formats of their final projects. This will help students plan and understand the process and the product expected.
6. A **CONCLUSION** that brings closure to the quest. It reminds the learners what they have learned, the process they followed, and perhaps encourages them to extend the experience into other situations.

How Do I Develop a WebQuest?

THERE ARE RESOURCES ON THE INTERNET that provide training materials, examples, and templates to make it easier. We have compiled our favorites at: **http://www.teachersnetwork.org/webquests/**

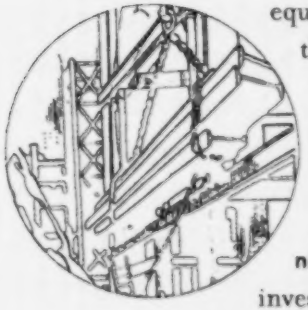
Skills you will need include the ability:

- **To choose a topic that expands on an existing lesson, draws from curriculum or standards, and is relevant to people in the real world;**
- **To find good resources on a topic that promotes inquiry;**
- **To use a web editor to create simple web pages; and**
- **To organize students effectively.**

You may already have units and materials developed which fit these criteria, in which case your main job is to pull them together into a cohesive, online format.

WebQuest tasks can:

- focus on journalistic skills, where students gather information from primary sources and transform this information into a report emphasizing accuracy and lack of bias. The **GUERILLA GIRLS WEBQUEST (http://www.teachersnetwork.org/webquests/guerillagirls/Page_2x.html)** provides students with newspaper articles and artifacts, such as posters produced by the Guerrilla Girls, a group which advocates for equal representation of women and minorities in museums. Students are then asked to critically examine the actions and viewpoints of this group, and to consider its potential for impacting their art curriculum.



- have design as the focus. Students may be directed to solve a problem, create a product, or develop a process according to defined parameters. In the **STRUCTURES WEBQUEST (http://www.teachersnetwork.org/dcs/math/structures)**, students work cooperatively to investigate how buildings are constructed and what makes them strong. After conducting research via the Internet and one-on-one interviews, the students create structures from file folders and white glue to use and test what they have learned. Another example is the **STRING ART PROJECT (http://www.teachersnetwork.org/dcs/math/stringart/)**, which asks students to gather information on symmetry and use their knowledge of geometric figures to fashion beautiful curves using only straight lines.

- involve developing something new while working within a given set of conditions. The **CONTAINERS WEBQUEST (http://www.teachersnetwork.org/dcs/math/Containers/index.html)** guides teams of students through an exploration of sphere-packing and communication skills. Teams create a product that meets certain criteria and develop a commercial to advertise it. **I'VE GOT THAT GEOMETRY BUG**

(http://www. teachersnetwork.org/dcs/math/bugweb/index.html) is a study of polyhedra, art, and science that leads to students inventing a new insect.

- compile data, ideas, or other material. An example of this project is **FEELING BLOATED?** (http://www.teachersnetwork.org/dcs/math/Bloated/index.htm). Students gather data as they watch their *creature* grow and shrink. They make decisions about similarity and rate of growth, and use spreadsheets to record and graph their data.

- encourage role-playing (be a scientist, a detective, a journalist) to simulate real situations people could encounter and ways to problem-solve. In **DESERT QUEST** (http://www.teachersnetwork.org/dcs/webquest/index.htm), elementary students become "experts" in zoology, botany, anthropology, and other areas in order to produce a multimedia proposal for a virtual desert museum.

- lead to self-knowledge. Understanding jobs and the relationship that salary has to one's standard of living is not easy for students in high school to truly grasp. However, a WebQuest like **EARN A LIVING AND LIVE ON WHAT YOU EARN** (http://www.teachersnetwork.org/dcs/math/BasicMath/Earn/index.htm) brings the reality home quickly. Using the Internet to locate real estate and car prices, students then use Internet calculators to determine the salary required to afford these necessities.

- be analytical in nature. **CAN YOU BE A MILLIONAIRE (WITHOUT WINNING THE LOTTERY OR GOING ON A GAME SHOW)?** (http://www.teachersnetwork.org/dcs/math/BasicMath/millionaire/index.htm) is a perfect project for learning how to integrate spreadsheets and investigate a real question that may ultimately change the way a person saves money.

Why should I use WebQuests with my students?

WEBQUESTS PROVIDE STUDENTS with authentic or real-life learning and assessment. Students develop and use knowledge and skills that translate to the outside world. In addition to easily accessing diverse perspectives, another positive aspect of the web is that it provides the context that is often missing in traditional school lessons and texts. Thus we can introduce students to interesting thematic relationships and juxtapositions that create a richer understanding of the issue at hand—the goal of every top-notch WebQuest. For the teacher, the most fun is the excitement and energy that a good WebQuest adds to the classroom.

We Built This City: a Study of Platonic Solids

Linda Kuzyk shares her experience in creating her first WebQuest.

(http://www.teachersnetwork.org/webquests/cityquest/Page_1x.html)

My introduction to WebQuests came about as the result of a WebQuest incentive offered at the state level, with a focus on math or science. WebQuests that met the predetermined criteria would be honored with a financial award and posted to the web for other teachers to use.

I had never done a WebQuest, but it sounded like a great way to use the Internet in my classroom so I took on the challenge. As it turned out, my first WebQuest took me far longer than I had anticipated. I had to first research, read, and gather data and ideas. The more I worked on it, however, the more I realized what a great teaching, learning, and assessment tool a WebQuest could be. It was all right there, in an organized framework. By the time I was finished, I was hooked. I really wanted to invest major energy into constructing more of them.

The part of the WebQuest adventure that speaks to me the loudest is the students' enthusiasm. It's a tremendous motivator. The next important aspect would be the resources section. You are able to harness some of the valuable wealth of information from the Internet and bring it into the quest for the students to access. In so doing, it saves a lot of time as students use web sites you have already previewed and deemed suitable to the task. Finally, the format of the WebQuest is clear, concise, and consistent. Since my mind tends to run in several different directions, this organizational aspect of the WebQuest framework earned my respect and gratitude.

From this point on, I plan on finding, bookmarking, and "tweaking" as many WebQuests as possible for my classroom use. I will also continue to create them. At some point, soon, I will ask to be on the agenda of a faculty meeting in my school to share my knowledge, enthusiasm, and experience with others.

How I Created a Monster (Web Site, That Is!)

By Carl Sannito

IF YOU ARE CONSIDERING CREATING a web site for your school, this article is for you. I am going to discuss the main reasons I have found for setting up a school web site. Perhaps this will give you a better idea of what you can accomplish with a school web site. It takes quite a bit of work, but the rewards are great. And now, on with the show!

It was the spring of 1999, and I was still wrapping up a very successful year in my third-grade classroom when I came across a flyer for a summer program. It spoke of training teachers in the mystical art of web design. "Web design? Hmmm . . . ," I thought. I had long believed that my school, Suder Elementary in Chicago, needed a web site. Why did we need a web site? Well, I wasn't exactly sure, but I figured if Blockbuster Video had a web site, why shouldn't my school have one too? My principal agreed.

I knew enough about computers to do a basic web search, so I figured I was ready to create my own school site. When I called the number on the flyer, a very polite woman explained to me that to get into the class, I needed to have already created a web page.

"Now, wait a minute," I replied. "You mean to tell me that to get into the web design class, I need to already know web design?"

"Yes, you do."

I guess that's why we have such a tough reputation in Chicago.

So off I went, a bit puzzled, yet intrigued. Perhaps I could pull this off yet. Maybe just a simple web page would be enough to get me in. Luckily, I was able to find some help online. A picture here, a graphic there and presto! I had a web page. When I went to the class, I met many people, teachers and students, who were well-qualified to train me in web design. I also discovered oodles of books written on how to use FrontPage 2000, Claris HomePage, or any of the other types of web design software. I even wound up buying some.

However, my goal was to set up a web site for my school. I wasn't sure what I wanted to put on it, but I knew I wanted one. I was going to need more than just the technical skills. I needed to design and plan this out. I needed to figure out what a web site could do for our school.

Before we go any further, please feel free to stop and take a look at my school's web site. The address is: **http://schools.cps.k12.il.us/suder/**. Go ahead and look. Take a peek. See if I actually know what I'm talking about here, or if I'm just some (a-hem) Yahoo.

Okay, back? Now, that site didn't just pop up overnight. It took some planning ahead of time. I decided before I even opened FrontPage what I wanted this web site to do. I wanted the web site to be used to:

(1) **display student work;**

(2) **highlight special school events;**

(3) **catalogue web resources for teachers and students;**

(4) **provide information about our school to the public; and**

(5) **give our teachers a place to store their classroom web pages.**

Where did I come up with these ideas? Actually, I spent a summer reviewing other school sites, and I took the best of what I saw. Can you do this for your school? Sure. Let's take a look.

How can you highlight student work on your web site? Well, you are going to need some equipment. A digital camera goes a long way and so does a scanner. An inexpensive digital camera will produce crisp images for your web site. A scanner will assist in capturing pictures and student work samples. I have published student writing and art work, along with short explanations for each piece. I have even posted photos from classroom projects.

A few words of caution: you must check with your school about permission slips before posting a child's picture on the web. Also, for safety reasons, I never use a child's name on the web site. The children love it when I put their work up on the site. Some go home right away and show their parents. How wonderful is that? The parent has a window to your school, and you can show off all the hard work! Also, other teachers in the school have an opportunity to see what is going on in the classrooms around them.

You can also showcase schoolwide events, such as your science fair, school picnic, or various assemblies. I have become the official school photographer. I sneak around while all the action is happening and see what I can photograph. Then, when I get a chance, I post the pictures on the web site for all students, teachers, and parents to see. This way, everyone gets to share the pictures I took. The students love to see if I have captured their pictures from each exciting event.

The web site is also a valuable resource. I know we sometimes like to share our favorite web sites with our colleagues and our students. I like to take the best ones, and put them up as links on the web site. I have them divided into various categories and sections. Take a look at the "Just for Teachers" section to get some ideas. This section is slowly growing. I also have a section "Just for Kids." I decided to keep that simple. I broke it down into links that are used for fun (like Arthur, M&M's, or the Chicago Bulls) and links that are used for study (newspapers, museums). If you want the kids to visit your site, keep your concepts clean and focused.

Since many people from outside the community are going to look at this site, I added a section with basic school information. Phone numbers, addresses, maps to the school, and background information about the school are all practical and valuable pieces of information to include.

The web site can also host individual classroom pages. Teachers can get creative on their own pages. You can also include teacher e-mail addresses here. You might want to have each teacher post a short biography and photo to get started. Classroom supply lists or rules can go here, as well as work samples. Fun messages are great too!

After I came up with a list of things I wanted to accomplish, I pieced together the site by section. I had *Home Page*, *About Suder*, *Suder News*, *Just for Kids*, *Just for Teachers*, and *Classroom Web Pages*. Having a plan ahead of time made the entire project significantly more manageable.

So, in conclusion, if you are thinking about creating a school web site, remember to plan first. Think about why you want a web site. Then design a format that works for you and your school. I have given you some ideas, but there are plenty more out there. Feel free to e-mail me with your ideas at: **carlsannito@yahoo.com**

Remember, if you fail to plan, plan on a headache!

CHAPTER 6
How to Escort Your Students on a Virtual Field Trip

HAVE YOU EVER WISHED YOUR SCHOOL had more field trip funds to allow your students to explore outside of their local community? Have you ever spent hours locating and coordinating print, video, and audio resources for a lesson on a particular geographical phenomenon, a museum, an historical monument, or another country? Or, have you ever experienced a wonderful field trip with your students and wished you could capture the highlights and memories in a meaningful way? If you answered "yes" to one or more of these questions, then you may want to investigate electronic—or virtual—field trips.

The virtual field trip is a field trip that students and teachers take via the Internet. Because students and teachers "travel" to other places, the virtual field trip has many characteristics in common with traditional field trips: the teacher plans preliminary, on-site, and follow-up activities; and students visit people and places to which they are not normally exposed. However, since it is conducted from the classroom, the virtual field trip has the advantage that students visit places and conceptualize ideas that may not have been feasible before Internet technology. Not only can they traverse the world free of charge, but students are also able to view and download dynamic audiovisual materials.

We suggest that you begin by looking at samples of existing online virtual field trips. You are welcome to select a trip linked from our site, **http://www.teachersnetwork.org/book/vfieldtrip.htm**, or design your own field trip based on a web site of interest to you. Next, create a task sheet to guide students on a tour, with appropriate hyperlinks and clarifying questions along the way. As on any field trip, identify the educational goals of the visit and share these with the students before they begin the journey. Provide students with a culminating activity to connect their experiences and knowledge gained from the trip.

A great benefit of the virtual field trip is that it utilizes technology tools to help students visualize and understand subject matter through exploration and active learning. The following exciting programs offer a variety of learning models based on the theme of virtual travel.

TECHNOLOGY SKILL LEVEL REQUIRED

Blast Off! Quest for Space

QUEST FOR SPACE IS ONE TEACHER'S experience in constructing meaningful web activities from a cool site. Having found a cardboard shuttle a colleague had discarded, she brainstormed ways to incorporate the theme of space in her math class. An old textbook located in the back corner of the classroom had a wonderful project on the Hubble Telescope, which inspired an online search for "Hubble." This brought her to the NASA site, where she found numerous lessons related to mathematics, science, and computer technology. After further exploration and preparation, she developed her own virtual field trip full of enriching activities for the students. (See student worksheet, pp. 68-69.)

Having access to the computer lab with my students for one day, I prepared a document with hyperlinks to guide students through the site. We did a puzzle, researched

the shuttle and the Chandra telescope, and completed a scavenger-hunt tour of the site that moved students from one place to another in a defined way while collecting information. To top it all off, I arranged for my students to chat, real time, with NASA engineers. I used this site to supplement the textbook to teach my students conversions, metrics, and basic computer use.

By the end of the year, this teacher had signed up her class for a project—to develop a community on Mars—sponsored by the NASA site. Colleagues in the art department helped students create mission badges; the journalism teacher assisted with designing a newspaper for the new community; and the band teacher led a discussion on how sound would be different on Mars. Students brainstormed ways to fly to Mars, based on their Internet research. The school year ended with the promise that the class name would go up on the next Rover to Mars. What a way to end the year!

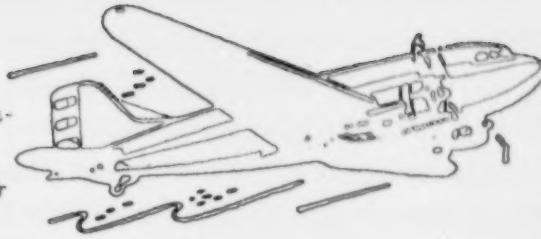
Planning Your Itinerary

ARE YOU READY FOR THE NEXT CHALLENGE? Have your students create their own virtual field trips. Ideally, students would have access to computers with web browsers, word processing and graphics software, and web authoring software if the project is to be published online. Scanners, digital cameras, sound and video cards, and CD-ROMs would also enhance the presentation. A technology coordinator provides her rationale for engaging students in the design of their own virtual field trips:

As a teacher technologist, it is my job to come up with interesting, logical methods for teaching my students the technology skills required by the state curriculum. Rather than go down a checklist teaching each skill as simply a task to be mastered and left behind, I much prefer teaching through the use of integrated units. I began using virtual field trips as a way to incorporate learning about copyright and legal issues related to electronic information, and the use of interactive technology to manipulate information.

A teacher with minimal technology skills could conduct the basics of this unit if he or she was familiar with navigating the Internet and capturing files. Skills that students might learn would range from capturing images from multimedia CD-ROMs, conducting efficient Internet searches, and writing HTML, to building and sequencing virtual reality graphics. The time frame for this activity will vary, depending on the number of skills you choose to include. With young students, I would make this a teacher-led project. Upper elementary students can design and complete the project in teams, while middle school and high school students should be able to succeed with individual projects. Teachers with limited

BEST COPY AVAILABLE



technology resources in their classrooms might require students to complete parts of the research and design through traditional methods, reserving the limited computer time for accessing online materials and typing and editing text.

Here is the procedure this technology coordinator follows, over multiple class sessions:

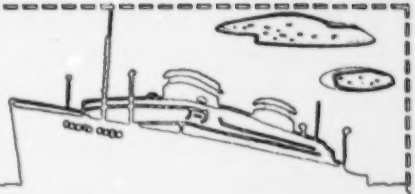
1. **Discuss field trips and family trips. Ask students their purpose, what makes them interesting, and invite them to share photos and mementos.**
2. **Introduce virtual field trips already online. Have students evaluate the effectiveness of various trips, and identify the key elements of a successful virtual experience.**
3. **Assign field trip sites that correlate with your curriculum, or have students choose their own, based on their interests.**
4. **Guide students through searching the Internet, CD-ROMs, and other resources to find information relevant to their trip. Introduce copyright law and fair use exemptions, and teach citations for electronic sources.**
5. **Direct students in writing an introduction containing a brief overview of their trip.**
6. **Teach the basics of web page authoring, if students will be creating a web page. Alternatively, allow students to design their own documents with a word processor or slides for a multimedia presentation.**
7. **Demonstrate the procedure to capture, save, and insert graphics from a variety of sources.**
8. **Develop, with the students, a rubric for project evaluation.**
9. **Present field trips and allow for discussion and peer review.**
10. **Publish field trips on the school web page for others to enjoy.**

Let's Cruise!

ANOTHER VARIATION ON THE virtual field trip theme is a project in which students use online resources to plan a dream vacation, then write a journal as if they had actually taken it. This activity reinforces language arts skills while students are engaged in a motivating, real-world task. Here is a sample handout designed by an English teacher to guide her students through the project:

Cruise Assignment Overview

Your Guide: Susan Lynne McMahon



STEP 1

You will be taking a trip, and you may need a passport. Using greeting card software, design a passport. The inside should include:

- Stamp
- Picture of an Eagle
- Photo of Yourself
- This passport certifies that the bearer is a citizen of the world. The bearer is entitled to travel and enjoy, but always must learn about and respect this diverse planet.

STEP 2

Using the Internet, locate a cruise that you would like to take. You have $5,000 and five to seven days to travel. You may go anywhere as long as you can afford it. NOTE: Are there different prices for different state rooms? Are beverages included in the rate? Make sure you have money left over for spending in each port.

STEP 3

You may need shots before you can begin your travels. Search government health advisory sites for the countries you will be visiting to find out what shots will be necessary.

STEP 4

What type of entertainment will be provided on your cruise? Look through various cruise sites and set up a calendar of entertainment offered for each day and night. Daily activities may include:

- Library visits
- Walks on the deck
- Games (shuffle board, volleyball, pool)
- Casino
- Dancing
- Kitchen tours
- Exercise classes, sauna, steam room
- Beauty salon services
- Dining

STEP 5

Research the weather at your destination. Design a suitcase using a draw or paint program, and include the clothing and accessories you will pack.

STEP 6

Take your cruise — virtually. As you gather information about your trip, keep a word-processed journal for each day. Your journal should include detailed information regarding geographic location and features, modes of transportation, and local customs. Take pictures often, and save on your disk.

STEP 7

Welcome Home! Put together a Hyperstudio multimedia presentation, with photos and mementos that chronicle your trip. This will be presented at the next Open School Night.

Sample Student Calendar of Entertainment

WEEK OF MAY 9TH-15TH

SATURDAY 9TH	Today, I'll be in Honolulu, Oahu. I'll wake up at 7:00 a.m. and work out in the private gym. I will visit the Bishop Museum Exhibit at 11:00 a.m., watch the Hula dance show before dinner, and have dinner on board in the Ono Dining Room.
SUNDAY 10TH	I will be at sea today. On board, I will take lessons to learn the Hawaiian language, how to make leis, and how to Hula dance. Then I'll have dinner in the Hawaiian Dining Room.
MONDAY 11TH	I will be in Nawiliwili, Kauai today. On board, I'll take ukulele lessons. Then, I'll watch a Broadway show at 1:00 p.m. For dinner, I will try out the different pit cooking stations.
TUESDAY 12TH	For two days, I will be in Kahului, Maui. I'll visit the Hawaiian Music Hall of Fame and Museum, go to the Hawaiian Jazz concert, and listen to the Island Magic Orchestra.
WEDNESDAY 13TH	Today, I'll still be in Kahului. I'll visit the Tsunami Library. The Kenny Endo Taiko Ensemble will entertain us. In the evening, we will listen to the relaxing music of the Island Riddim Band.
THURSDAY 14TH	Today, I'll be in Hilo, Hawaii. After I visit the Film Festival, I'll relax up on deck and swim in the beautiful pool. In the evening, I'll have dinner at the Hong Kong Garden Restaurant.
FRIDAY 15TH	Today, I'll be in Kona, Hawaii. On board, I'll watch the crew perform a "hoike" show. Then, we'll gather on deck to cast our flower leis over-board. Tomorrow, I'm going back home!

Seize the Day! Travel Web Pages: A Way to Capture Travel

TRAVELING WITH STUDENTS IS LIKE riding a roller-coaster from start to finish—all the planning, the fundraising, the phone calls, the build up to the big departure, slowly but surely . . . and then the thrill of the trip! Whether the adventure lasts a weekend or a week, it creates memories for a lifetime. Upon arriving home, pictures are shared, some laughs are had, and you move on. With so much invested in this experience, how could you take it one step further and capture it permanently? Through creating a travel web page *while* you are on the field trip!

A travel web page has numerous options for matching your technology skill and comfort level to the amount of time you would like to spend on the project during the trip. Consider the following guiding questions, prepared by an experienced school trip teacher/chaperone and travel web page creator:

Will you have Internet access on a regular basis?
Internet access may be determined by calling the hotels where you will be staying, reviewing country information on the Internet, or searching for libraries or cyber-cafes in cities that you will visit.

Will you create your web page from your travel location, or is it possible to identify a colleague in your home district to create the web page from your group's stories and photos?
If you or one of your students has webmaster abilities, creating a web page while on-site is an option. If you are less ambitious and have access to a technology specialist at your school or district office, you may prefer to transmit daily reports and photos via e-mail. Once home, the students can scan in additional materials and make further enhancements to the page.

Will you be able to carry and use a laptop computer during the trip?
If you do not have access to a laptop, you can utilize computers at a local library, college or university computer lab. If you do bring a laptop with you, find out if you can store it in a safe or lockbox during excursions. Is your computer lightweight? What electrical connections/voltage requirements are needed? Check the web site of your laptop's manufacturer for business travel needs, such as adaptors and phone cords.

When traveling, will you have time every day to complete a journal entry or story?
Traveling with students can be an exhausting experience. If your stories are simple summaries, the end of the day works well. If you are developing more insightful, evaluative stories, synthesizing the information learned throughout the day, you will want to have enough time allotted for students to discuss their experiences before writing. If you are creating and

maintaining web pages on-site, then designate a time period each day, such as the hour before dinner, for students to work on this.

Who will be the audience with whom you hope to share this web page?
Will you be sharing your information with your school only, with classes that are following along from home, with students' friends and family, with citizens of your hometown, or with sponsors who financed the trip? Answering these questions will help you establish how much time you wish to dedicate to your web page every day.

Will your web page be used as a learning tool, or simply as a trip summary experience?
Your group may simply create a list of "what we did today . . ." stories that are simple and to the point, with pictures. You may create more in-depth stories that add the dimension of higher order thinking skills, with students comparing and contrasting elements of the culture they are experiencing with their own. Taking this idea one step further, you may have your group, either before or after traveling, research web sites with facts and photos of the area. These sites then may be linked from your travel web page, creating a very well-rounded learning tool for future reference and for individuals who are experiencing a "virtual field trip" with your group.

Who will be writing and editing the content?
You may choose to have your students outline the story for the day, evaluating key points of interest, while you do the final writing. If students decide to do the writing themselves, outline expectations and story formats prior to the trip. Be sure to edit student writing for grammatical errors, sentence structure, and content before posting to the Internet. You may want to have students work in teams to create web page summaries, pairing individuals with higher-level writing skills with those who need more assistance.

Once back home, what enhancements could be added to the page to continue the learning experience?
Upon completion of the travel web page, the extensions for learning are numerous. Here are a few ideas to generate thought and discussion with students:

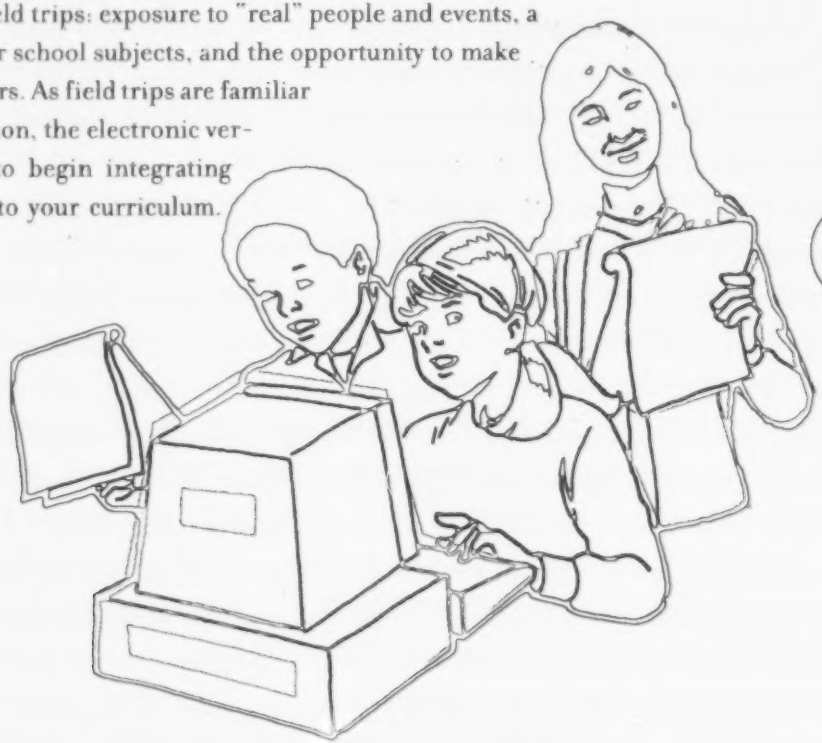
1) *Assign books about the region visited, and have students write synopses of the books and provide links to online bookstores.*
2) *Explore various cultural aspects in depth, such as food. Take pictures of food items while traveling and compile recipes and cooking web sites to accompany them.*
3) *Create a discussion forum for students to continue exchanging ideas with each other, their peers, and other members of the community.*
4) *Add audio clips of some of the local music students heard while traveling.*

5) *Scan mementos such as menus, currency, ticket stubs, and other authentic artifacts collected along the way.*

Creating a travel web site while en route will encourage students to think about their learning experience on a much deeper level. Even if you don't publish their writing to a web page until your return, the writing done on-site will capture the excitement of the travel experience. The suggested follow-up activities provide students with the opportunity to synthesize their experience, and to reflect on cultural similarities and differences. Whether students are visiting another city, state, country, or continent, the travel web page will become a virtual field trip to experience time and again.

NOTE: *While this is a dynamic project for students of all ages and ability levels, it was submitted by a teacher of Deaf and Hard of Hearing students. The Internet facilitated and enhanced student communication with each other and with their peers worldwide.*

Virtual field trips provide opportunities and experiences that are similar to those of traditional field trips: exposure to "real" people and events, a compelling context for school subjects, and the opportunity to make connections with others. As field trips are familiar events in K-12 education, the electronic version is a good way to begin integrating Internet resources into your curriculum. Bon voyage!



Welcome to Millennium's ISS Virtual Field Trip

Your Guide: Rosemary Shaw

Today we are going to blast off into space by researching the International Space Station.

TEACHERS

You might want to try this virtual trip before you assign it to your students to make sure that the links are still current, and to acquaint yourself with the material.

STUDENTS

Today we are going to explore the space station. Follow the directions and record your answers to each question.

(1) Go to: http://www.google.com
a) Type in NASA ISS in the search bar; click google search.
b) From here you will find a list of matches for your inquiry.
c) In a normal search you would read the abstracts and decide which ones best suit your needs, but today, I want you to choose the overview of the ISS, and click on An overview of NASA ISS human engineering and habitability.

(2) An overview of NASA ISS human engineering and habitability
a) Write down the URL for "An overview of NASA ISS" in your notebook.
b) This site gives you an excellent overview of the mission of the ISS. Please give a brief summary of the information found here.

(3) Now, let's return to http://www.google.com
a) Type in NASA ISS again;
b) Choose one of the sites that lists its link as nasa.space.gov/station such as: HSF - International Space Station.

(4) From the title banner, please scroll over the STATION tab and choose the REFERENCE tab from the list. From here, go to International Partners.
a) Read this page.
b) List the 16 participating nations.

(5) From the title banner, please scroll over the STATION tab and choose the ASSEMBLY tab from the list.
a) Read the ASSEMBLY page.
b) Write the name of the first Russian module.
c) Write the name of the first American module.
d) Write the year that the Shuttle-Mir dockings began.

(6) Using the search box on the right-hand side; type 2R in the "select a flight" field. Hit "Go."

a) List the first 3 person crew to live on the ISS.

b) What countries are they from?

(7) Go to the top of the page, scroll over STATION; and click on BENEFITS.

a) Read the BENEFITS page.

b) List 5 benefits.

(8) From the title banner, please scroll over the STATION tab and choose the SCIENCE tab.

a) Read the SCIENCE page.

b) Answer the following questions:

1) How many research laboratories will be on the ISS?

2) What is convection?

3) How will artificial gravity be provided?

4) How many crew hours per week will be spent on research?

5) How will the innovations from research help us economically?

(9) Go to the top of the page, scroll over the REAL TIME DATA tab and click on the SIGHTING OPPORTUNITIES tab.

a) Find the SIGHTING HELP link, and click there for help with text-based Sightings information.

b) Please read the Sightings information page.

c) Answer the following questions:

1) What does a spacecraft look like in the sky?

2) What do shuttle/station docking missions look like in the sky?

(10) Click on **http://spaceflight.nasa.gov/realdata/sightings/**

a) Under Quick and Easy sightings by city, click on SIGHTINGS by city.

b) Click on Orlando, FL.

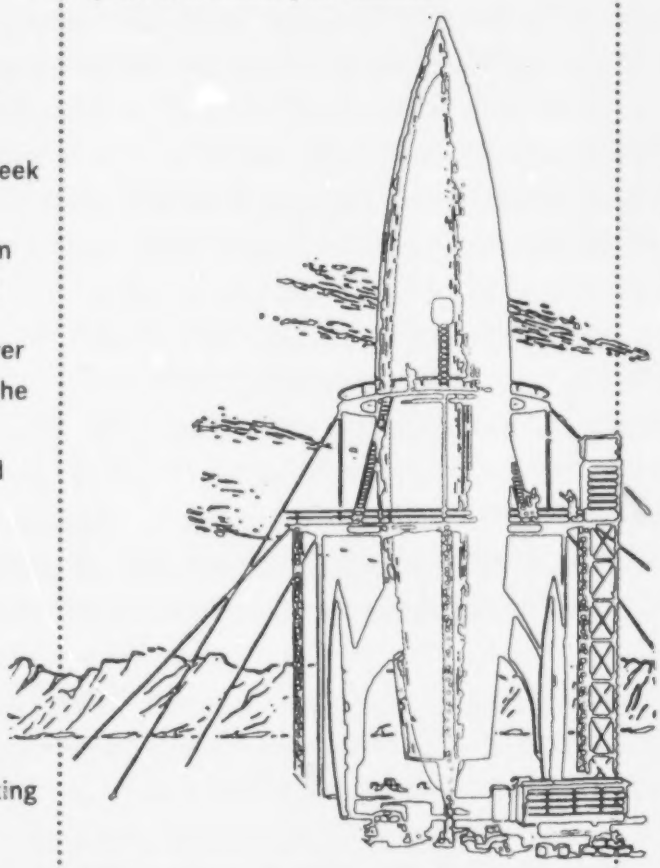
c) Make a promise to find a day when you can go view the ISS, and write this date down.

SUMMARY:

What were the most interesting facts you learned today?

EXTENSION/HOMEWORK:

If you were going to create a quiz for other students to take, what five questions would you include?



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CHAPTER 7
How to Produce the Virtual Textbook from K-12

Electronic Alphabet Books

http://www.teachersnetwork.org/book/alphabet/

IF YOU ARE LOOKING FOR A GREAT way to help first graders review the names and sounds of the letters of the alphabet in a meaningful way, and to provide associations for those students experiencing difficulty maintaining the letter-sound connections, then this project is for you. Armed with a new camera and a desire to learn more about technology, one first-grade teacher decided to create a photo-illustrated electronic alphabet book about the farm next door to her school.

The class made numerous visits to the farm to find and photograph concepts for each letter of the alphabet. There was rich discussion and brainstorming as students chose just the right shot for each letter. Time was spent reading other alphabet books and student-created web sites to get a feel for the best way to present the work. The students drafted text for each page, problem-solved the page numbers, and put a lot of newly-developing reading, math, and technology skills into practice. With the assistance of the school technology director, the class learned how to scan photographs and create basic web pages.

This project really took off when it was published online; "Mrs. Jackson's Morris Farm Alphabet Book Site" soon received over 50 e-mail messages with praise, com-

ments, and questions. All responses were mapped and tallied, creating additional social studies and math lessons. Imagine the pride and excitement these students felt when their project won a National Semiconductor Innovative Internet Award. Their teacher, a 15-year classroom veteran new to technology, reports:

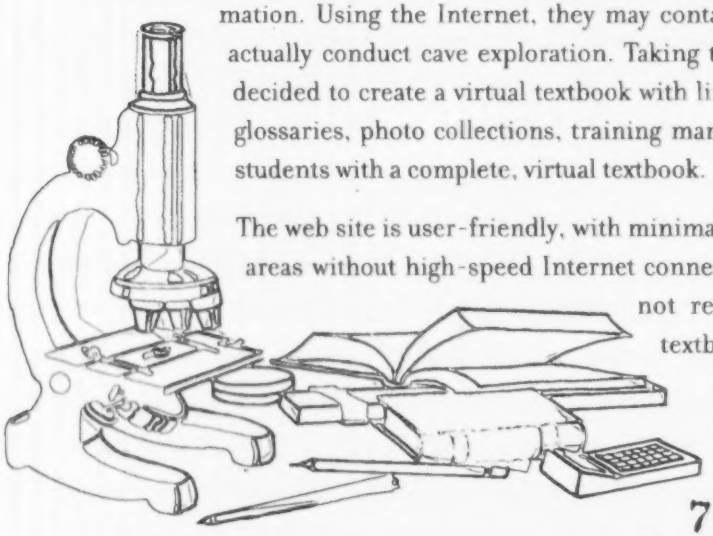
This one project allayed my fear of technology and hooked me. I am now learning to use both a scanner and a digital camera in order to share these skills with my students. I look forward to creating new ways of using technology across the curriculum.

Science Online

http://www.teachersnetwork.org/book/chemresources.htm

SCIENCE EDUCATORS LOOKING to increase the level of excitement and enthusiasm among their students should look no further. "Science Online" is a rural high school science teacher's instrument to make science education real and exciting for his students, many of whom have difficulty relating the study of chemistry to real world applications. Seeking a way to get his students to "buy into" his course, this teacher selects a different course theme each year based on student interest. Each theme, such as automobiles, rivers, skiing, or speleology (underworld and cave chemistry), becomes a scientific and interdisciplinary inquiry based on experiences students encounter in their daily lives.

Using a theme allows students to study science while they are *doing* science. The study of caves, for example, involves measurement, analysis of data, acid-base chemistry, solution chemistry, equilibrium, experimental design, and research skills. In the past, students had to rely primarily on their textbook and their teacher's expertise for information. Using the Internet, they may contact professional scientists who actually conduct cave exploration. Taking this idea further, their teacher decided to create a virtual textbook with links to useful web sites. Online glossaries, photo collections, training manuals, maps, and more provide students with a complete, virtual textbook.



The web site is user-friendly, with minimal graphics so it loads quickly in areas without high-speed Internet connections. While this web site has not replaced a standard chemistry textbook, it has extended the textbook into everyday life. It is used not only by students in

the course, but by parents keeping informed of their children's learning, by other teachers throughout the country who are interested in adapting the program, and by former students who are now continuing their science studies in college and using the web site as a reference tool. As their teacher explains, this site has helped students to study chemistry in a way that he—and they—never thought was possible:

The site has allowed me to make contact with a group from the National Speleological Society writing a national curriculum for K-12 students. They have included several experiments developed by students in my class. It has given students direct contact with researchers in the field of speleology, and even attracted a surprise guest speaker. I was contacted by a professional cave photographer from ***National Geographic*** *who lives very close to us, and he has offered to lead a field trip for the students. The site has also led to student group publications on their data collection and analysis. I am proud to report that the number of students taking elective chemistry has increased yearly, and many former students have continued with caving as a life skill.*

Computer-Enhanced English

http://www.teachnet-lab.org/fklane/maslow

COMBINING HER LOVE OF literature and enthusiasm for technology, an English teacher found the perfect way to motivate her students and foster their interest in reading. She has accumulated her web-based lesson plans onto one site accessible 24 hours a day to her ninth and tenth grade students. The ability level of her students varies widely, so she chooses literary works representing a variety of reading levels. Easier books include ***Having Our Say***, told to Amy Hill Hearth by the Delany sisters and ***Kindred***, by Octavia Butler. The plays, ***Witness for the Prosecution***, by Agatha Christie, and ***Inherit the Wind***, by Jerome Lawrence and Robert E. Lee, are more difficult to read. She has found that incorporating technology into her classroom activities can be a leveler, because students who have verbal difficulties often thrive in the online environment.

The students in this program use technology in several ways and for several reasons:

Word processing. By typing out their first drafts, students can easily revise and edit a typed copy on the computer rather than having to handwrite it over and over again. They may also use spell-check and thesaurus tools.

Discussion forums on the Internet. Students can post their written drafts on the discussion forum, and then reply to each other. They benefit by reading each

other's writing and by helping each other to improve a written piece. In this way, they are also getting feedback from other individuals besides the teacher. Readers are instructed to reply or respond to a peer by pointing out what they like, asking questions, and/or writing a summary. In a unit on writing an article based on an interview with a relative, students respond first to articles written from interviews conducted with other students in the class. After reading ***Kindred***, students post their journals written from the point of view of one of the characters. Other students read these and respond to what they liked or learned from reading another student's journal. Students can also be assigned at any time to post what they are thinking after reading pages in a work of literature.

3 **Internet searches.** In each lesson, students are provided with a list of links to relevant sites. Usually in literature classes, the goal is to learn the historical background of the text the class is reading. In one assignment, based on ***Kindred***, students search for historical details about slavery that they will need to write their own story. In a unit on ***Inherit the Wind***, Internet links bring students to court documents, newspaper articles, and other primary source materials regarding the Scopes trial. As their computer proficiency increases, students read and annotate their own hyperlinks, creating their own hot links page on a particular topic.

4 **Web page creations.** Students design web pages for two purposes. One is to present their opinion in the form of a web page on a large question such as: Death Penalty—Right or Wrong? This is called inquiry-based learning. The other purpose is to design an online newspaper based on a work of literature read by the class. While students are reading ***Witness for the Prosecution***, they are learning how to write newspaper-style articles with similar themes to this play. Then they write their own articles—such as news, feature, opinion, or obituary—and create their own online newspaper using a web authoring program.

5 **Desktop publishing.** Desktop publishing has been an important part of this teacher's classroom routine for years, previous to any involvement with the Internet. A hard copy of student writing still has many good uses. Writing can be displayed on bulletin boards in the classrooms and school's hallways, and taken home to be shared with parents. Students are thrilled to see their names alongside articles and photos in the school newspaper. There is a lesson on this site, "Journalism," created to help journalism students improve their research and writing skills.

When asked how she started infusing her English curriculum with Internet resources, the

teacher who developed this program replied:

> *At first, I hated using the Internet because I had no skill, no patience for the time it took me to find anything. My students were my main motivation to learn computer skills. I took several summer courses and training institutes, and with a lot of time and hard work, I was able to become comfortable in the online environment and to create my site for my students. This has been one of the most rewarding accomplishments of my teaching career.*

To start designing your own virtual textbook, try our online tutorials for creating basic web pages: **http://www.teachersnetwork.org/book/tutorials**

How to Create Your Own Web Page!

by Nancy Norem Powell

It's Wednesday, and I just learned the basics of building a web page on Saturday. I am extremely excited because creating a web page is easy to do and does not require any special software. If you have a Mac computer, you can use your Simple Text. If you have a PC, use the Notepad to write the "program" for your web page. There are a few rules that will make your work with HTML (Hypertext Markup Language) a little easier.

- The commands are not case sensitive and are always enclosed in greater and lesser than signs. Ex: **<HTML>**

- Most of the commands come in pairs—one command at the beginning and one at the end—to tell the computer when to start and stop the command. The command at the end always starts with a slash (/) inside the command prompts. The slash tells the computer to stop doing that command or close. For example,
<CENTER> This is centered. **</CENTER>**

Therefore a trick, when typing in commands, is to type the first command and then the end command right away. Then go back and enter the appropriate text between the two commands. This way you won't forget to close your commands.

- To begin writing the code for your web page, use the **</HTML>**. Put some spaces in between these commands because this is where you are going to type in the rest of your code.

- Major sections include **<HEADER></HEADER>** and **<BODY></BODY>**. The header includes the setup for any background colors or background images that you would like to use. It also includes the "title" of your page. The title does not appear on the page, but if you look way at the top of your browser software (Netscape or Mosaic) you will see it. The body is where you will be typing in the rest of the code.

- The major commands that do not come in pairs are:
<HR> which gives you a Horizontal Rule.

**
** which forces the program to go to the next line on the screen to continue with the output.

<LI> which puts either a bullet or a number at the beginning of unordered lists **<UL>**or ordered lists **<OL>**.

- For emphasis, use the different sizes of header fonts (**H1-H6**), bold **<B>**, or italics **<I>**. But, don't forget to close these commands.

- To make electronic links to other sites ("hotlinks"), use the **** followed by the print you would like to have highlighted and then close this command with ****. Any text you write after **** will now be black and not a link.

- Images and pictures on web pages should be saved in **.jpeg** (pronounced "j-peg") or **.gif** (pronounced "jif," like the peanut butter). Make sure that all of the pictures that you are going to use on your web page are located in the same directory as your HTML code. To access these images on your web page, use the **<img scr ="filename">** command.

- You can't tell from the picture (on page 79), but I've set the background color **<body bgcolor>** to a soft yellow and then put a white and yellow "textured" graphic, saved in .gif format on the background **<background>**. I've included several web sites on the web page so that you can get colors for backgrounds and copies of .gif graphics for backgrounds.

- Once you have written some code, save it under a file with either an .htm (PC users) or .html (Mac users) extension, such as homepage.htm or homepage.html. Then open up your browser. Use the File menu at the top and choose open a file. This will pull in your document so that you can view the results. To add more to your page or make changes, switch back to your document in Simple Text or Notepad. Just make sure to save it each time you make changes before you go back to your browser.

- With the help of your Internet administrator, you can FTP your web page to your Internet server. Now, it's online. Or you can simulate your own Internet by saving your students' web page as files on your hard drive and by creating a homepage that will link them. (*Note:* If your homepages are saved as files on your computer, make sure to put them in the same directory with all photos and graphics, and use the command **<a href= "file:///C|/file name">**; the "**C**" represents the drive where the files are located.)

With these simple intructions, you can be a webmaster in no time! Send me your URLs, and I'll come visit. Or you can send me your questions, and I'll see if I can help—**powelln@district87.org**.

The Anatomy of a Web Page

Here's the HTML (HYPERTEXT MARKUP LANGUAGE) code that I needed to create the web page on the right. Turn to page 76 for step-by-step instructions for how to create your own web page.

```
<HTML>

<HEADER>
<TITLE> Bloomington High School </TITLE>
</HEADER>

<BODY>
<BODY BGCOLOR="#ffff84"
BACKGROUND="yellow_f.gif">
<CENTER>This is Bloomington High School's logo.
I scanned it and saved it as a .gif file. </CENTER>
<HR>
<CENTER><img align=middle width=100 height=100
src="bhslogo.gif">
<H1> Bloomington High School</H1></CENTER>
<HR size=5 width=600>
<CENTER> I've turned the centering on here ...using
the H1-H6 commands; a line break (BR) is automatic
after closing a heading command.
        <H2>This is header size H2. </H2>
        <H3>This is header size H3. </H3>
        <H4>This is header size H4. </H4>
        <H5>This is header size H5. </H5>
        <H6>This is header size H6. </H6>
</CENTER>

I used the unordered list (UL) command without a
(LI) command to indent these lines.
        <UL>This is <B>Bold</B> print.
        <BR>
        <UL>This is <I>ITALICS</I>.
        <BR>
        <UL>This is <B><I>BOLD ITALICS.</I>
</B></UL></UL></UL>

<H3> Electronic Links to Great Web Sites</H3>

<I> Notice the bullets. . . these are the results of
unordered lists (UL) and the (LI) command.</I>

<UL>
<LI>This is a link to the <a href="http://www.teachers
network.org/">Teachers Network</a> web site.
Click on the colored text to visit this site.
<LI>This is a link to <a href="http://www.bhs87.
org/"> Bloomington High School</a> in Bloomington,
IL</LI></UL>

<H3>Nancy Powell's Web Page Helpers ...</H3>
<I>Notice the numbers ...these are the result of
ordered lists (OL) and the (LI) command.</I>
<OL>
<LI><a href="http://www.bhs-ms.org/webhelp/">
Web Page Topics</a> for helping a web page
creator</LI>
<LI><a href="http://www.bhs-ms.org/webhelp/sample.
html">Web Page Tutor</a> to go with this book</LI>
<LI><a href="http://www.bhsms.org/webhelp/backgr.
html"> Web Page Backgrounds and Colors</a></LI>
<LI><a href="http://www.bhs-ms.org/webhelp/writing.
html">Writing a Web Page</a> with web
resources</LI>
<LI><a href="http://www.bhs-ms.org/webhelp/graphics.
html"> Graphics</a> with links to graphic resources
on the web</LI>
<LI><a href="http://www.bhs-ms.org/webhelp/wpsubmit.
html">Submit your web site to search engines</a></LI>
</OL>

</BODY>

</HTML>
```

This is Bloomington High School's logo. I scanned it and saved it as a .gif file.

Bloomington High School

I've turned the centering on here. . . using the H1- H6 commands; a line break (BR) is automatic after closing a heading command.

This is header size H2.

This is header size H3.

This is header size H4.

This is header size H5.

This is header size H6.

I used the unordered list (UL) command without a (LI) command to indent these lines.
This is **Bold** print.
This is *ITALICS*.
This is ***BOLD ITALICS***.

Electronic Links to Great Web Sites

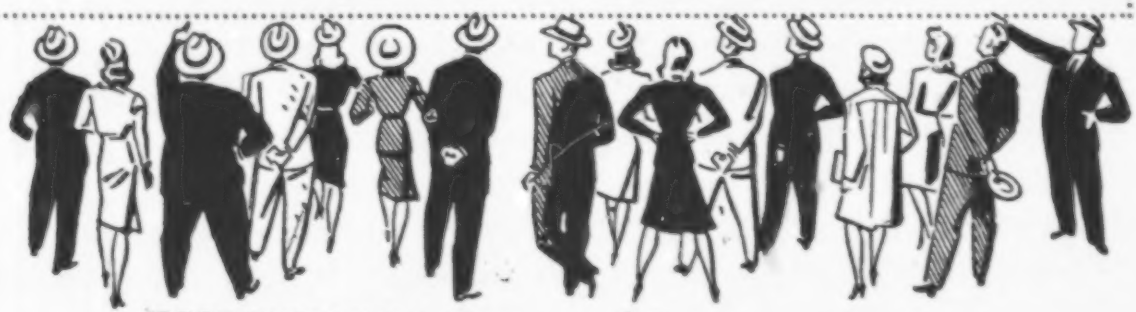
Notice the bullets. . . these are the results of unordered lists (UL) and the (LI) command.

- This is a link to the TeachersNetwork web site. Click on the colored text to visit this site.
- This is a link to Bloomington High School in Bloomington, IL.

Nancy Powell's Web Page Helpers. . .

Notice the numbers. . . these are the result of ordered lists (OL) and the (LI) command.

1. Web Page Topics for helping the web page creator
2. Web Page Tutor to go with this book
3. Web Page Backgrounds and Colors
4. Writing a Web Page with web resources
5. Graphics with links to graphic resources on the web
6. Submit your web site to search engines



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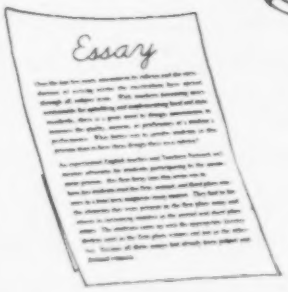
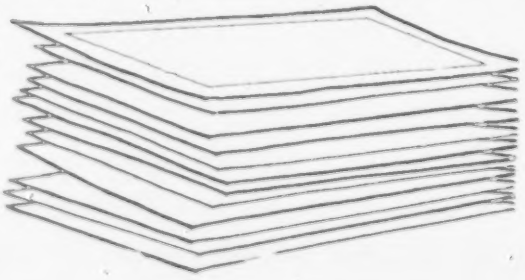
CHAPTER 8
How to Assess Student Work in the New Media Classroom



OVER THE LAST FEW YEARS, assessment by rubrics and the introduction of writing across the curriculum have spread through all subject areas. With teachers becoming more accountable for upholding and implementing local and state standards, there is a great need to design assessments to measure the quality, success, or proficiency of a student's performance. What better way to involve students in this process than to have them design their own rubrics?

Experienced English teacher and Teachers Network web mentor Julie Vitulano advocates for students participating in the assessment process. Her first foray into this arena was to have her students read the first, second, and third place winners in a local teen magazine essay contest. They had to list the elements that were present in the first place essay and absent in increasing number in the second and third place essays. The students came up with the literary devices used in the first place winner and not in the other two. Because all three essays had already been judged and deemed winners, the scope of the student assessment was limited to the artfulness of the writing and not to any real deficiencies. It was a simple way to start.



Next, she collected samples of student writing in various forms—essays, biographical accounts, research papers, poems, dialogues—with

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the objective of using them anonymously in the future for student assessment. The task of incorporating the rubrics process into her assignments was getting more complicated. A lot of paper was involved, as well as a lot of care to insure anonymity. It was immediately evident that typing and filing documents of varying genres and qualities would make management of the tasks associated with using and creating rubrics much easier. Reading, itself, would be easier for the students as they would not have to deal with penmanship issues. If the documents were saved as word documents, the students could use the spelling and grammar programs as part of their review. Highlighting and/or underlining could also be used to identify specific elements of the performance related to the rubric.

A side product of this student rubric project was that the students in following years had a group of excellent models of both rubrics and writing samples in varying genres. These are now used as guides as the students proceed through the writing process, and new assignments require them to prepare rubrics defining performance expectations and elements to judge them. If an LCD projector is available, the teacher may use any of the filed documents to display points she wants to make. As students become more proficient using technology, their rubrics become more complex in design and scope. Student rubrics may also be published on a class web page. The degree of ownership, and therefore the degree of responsibility, associated with their rubric work will increase when the students see that their work is accessible to others via the Internet. The teacher offers her thoughts on the integration of rubrics assessment in her classes:

> *The skills of self and peer evaluation, traditionally taught in English classes, become more honed as the students themselves develop and use rubrics to assess performance in a variety of learning activities. Metacognition is enhanced when a learner has the "jargon" and rubric to understand exactly what he or she is learning. I believe many students will respond the same way I did when I read my first rubric—that it wasn't much more than a boring chart. The use of computer technology, with the built-in ability for graphics and interaction, will turn that around. It will help you and your students to align learning goals with tangible performance indicators, making full use of rubrics as the sophisticated assessment tools that they are.*

Julie Vitulano's favorite online rubric resources go to: **http://www.teachersnetwork.org/book/rubrics** These include links to sites with downloadable rubric templates, sample assignment and their corresponding rubrics, and activities to get you started with your students.

Student Presentation Rubric

The following rubric explains the elements of a good student presentation, and how to judge the level of performance. It can be modified and adapted to any number of technology-infused projects featured in this book.

Any questions? Post a message to Judy Jones' bulletin board: **http://www.teachersnetwork.org/docs/ntol/talk**

Criterion	Inadequate	Adequate	Competent	Outstanding
Introduction This is where the presenter "engages" the audience by connecting the presentation to the experiences or interests of the class. The introduction also informs the class of the agenda for the day.	o no introduction o introduction weak	o introduction present o introduction not particularly inspiring	o introduction leads directly to body of presentation	o introduction piques interest and leads directly to body of presentation
Body of Presentation This is the most important element. This is where the presenter helps the class understand the content that must be learned. The presenter must have a deep understanding of the content in order to teach it. The presenter plans active experiences for the class interspersed with discussions and explanations.	o understanding of concepts is weak o presentation does not explain concepts well	o understanding of concepts is adequate o presentation is clear but not strongly supported by research or additional materials	o understanding of concepts is good o presentation connects concepts and includes a variety of activities and strategies	o understanding of concepts is excellent o presentation strongly enhances understanding through creative and clear explanation
Technology Integration Technology plays a major role in developing presentations. The presentation should incorporate information gained from web research, advice from online experts in the field, data representation in tables or spreadsheets, and/or supporting visuals. The entire presentation may be coordinated through a PowerPoint or HyperStudio slide show.	o minimal or no evidence of technology applications used in presentation	o technology applications used for information or visual design only	o technology applications are useful and consistently appropriate	o technology applications are well-integrated and inherently connected to concepts
Shared Participation (for groups) Good presenters make sure that each person in the group is involved equally in the presentation and that the total presentation follows a logical sequence.	o very unequal participation of presenters o one or more persons does not participate in presentation	o participation is not equal but each person o participates at least 20% of the time	o participation is equal but each person's part is not well connected to the other presenter(s)	o participation is interactive and equal o each person's contribution supports and enhances the others
Class Involvement A good presenter always involves the class in the learning experience. This may be through question and answer periods, hands-on activities, or other methods to engage the audience.	o class is not involved o involvement is weak and does not enhance learning	o class involvement is sometimes supportive of conceptual understanding	o class involvement supports conceptual understanding	o class involvement is inherent to the lesson o learning is greatly enhanced by class involvement
Summary At the end of the presentation, the presenter helps the class summarize what has been learned. This may be through a quick quiz or interactive game, or by more traditional methods. The summary should suggest further investigation or ideas for exploration.	o no summary o summary very weak	o summary present o summary connected to body of presentation	o summary connected to body of presentation o summary reinforces concepts learned	o summary connects well to body of presentation and to larger concepts o summary proposes new areas of thinking and research

EVALUATING WEB SITES

KATHY SCHROCK is well-known in the education field as the creator of Kathy Schrock's Guide for Educators (**http://discoveryschool.com/schrockguide**), a web site started in June of 1995 to help fellow educators identify curriculum-related Internet resources to enhance their units of study. She is the author of six books, and numerous articles, on the topics of information literacy, search strategies, copyright issues, and web site evaluation. Kathy is presently the Technology Coordinator for the Dennis-Yarmouth Regional School District in South Yarmouth, MA, where she has worked for over 10 years. She shares her thoughts with us on critically evaluating web sites that will be used for instructional purposes.

TEACHERSNETWORK: What is your opinion of schools and/or districts using filtering software to prevent students from visiting inappropriate web sites? What is the alternative?

KATHY SCHROCK: My personal opinion on filtering is the same as most library media specialists. Information should not be censored. The teachers should be monitoring sites, as they do with any classroom material, and leading students to the information that is to be examined. There is no better filter than a vigilant educator. All screens should face outward. Students below grade 7 should probably not be doing open searches but be using kid-friendly directories. All students should be on task when using the Internet. If districts do employ a filter of some type, each teacher should have the ability to override the filter, since some of the sites needed to support a lesson may be blocked.

A graduate student of mine, Diane Hartley, recently provided me with an eloquent analogy dealing with the filtering issue:

"If we are to prepare our students to voyage bravely in the real world, we must teach them to navigate through stormy seas. We will certainly run into "bad weather," if we don't keep a watchful eye on the forecast. In certain situations, we might have to limit our students' searches, whether for time constraints or social constraints. Yet, it is our responsibility to guide students to information-rich sites and directories, while providing stimulating and challenging assignments that will encourage the students' continual development of their online research skills **without** censoring their access.

Our students will leave safe harbor and set sail on the high seas upon graduation. To ensure that their navigation skills are adequate, they must have been instructed in their use. If they can't read the compass, how will they know which way to go?"

TEACHERSNETWORK: How can teachers and media specialists determine which web sites are educationally sound?

KATHY SCHROCK: The only way anyone can determine if a site is educationally sound is to have a prior knowledge base in the topic. Library media specialists need to rely on the content-area teachers in their schools to help them determine the authority with which the web page creator speaks. In addition, when looking at a site to use with students, they have to consider the reading level and appropriateness to the age group with which they are working.

When evaluating information on the Internet, you need to consider authority, accessibility, and applicability before using it with your classes. I have determined 26 criteria to use when evaluating sites:

26 Criteria

- AUTHORITY
- BIAS
- CITATIONS
- DATES
- EFFICIENCY
- FALLACY
- GRAPHICS
- HANDICAPPED ACCESSIBILITY
- INFORMATION AVAILABILITY
- JERRY-BUILT
- KNOWLEDGE
- LINKS
- MISINFORMATION
- NAVIGABILITY
- ONLINE RESEARCH
- PERTINENT
- QUANTITY OF INFO
- REQUIREMENTS
- SCHOLASTIC REVIEWS
- THOROUGHNESS
- UNIQUENESS
- VERIFIABLE
- 5 W'S
- XTRA INFORMATION
- YAHOO
- ZEN

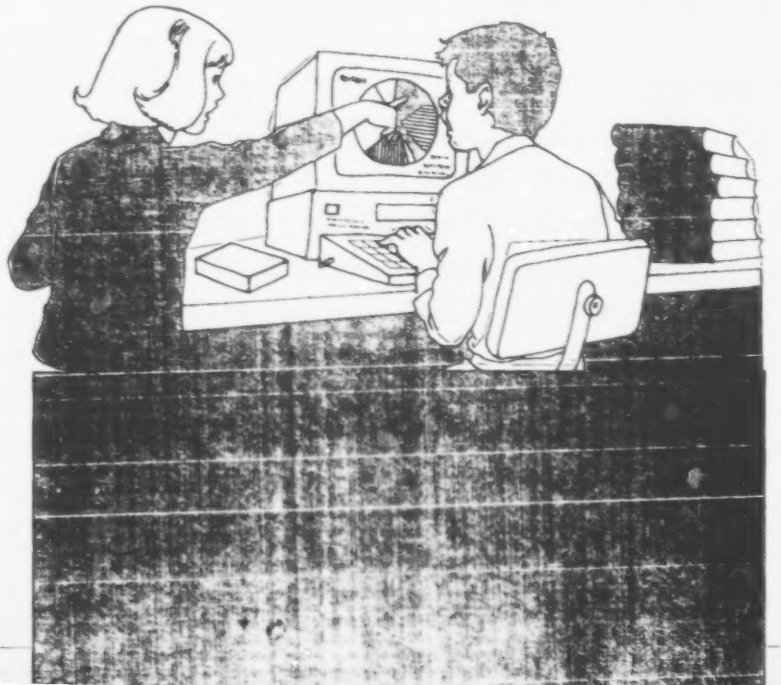
Descriptions of each area may be found at: **http://discoveryschool.com/schrockguide/eval.html**

TEACHERSNETWORK: What are some of the distinguishing features of your favorite web sites?

KATHY SCHROCK: I am often asked to talk about my favorite web sites. After looking over the ones that excite me the most, I realize that it is the content-rich web sites that support teaching and learning which are my favorites. A site that presents information in a new way, but at the same time provides the user with a huge amount of content, is the kind of site that, to me, exemplifies the best use of the web.

TEACHERSNETWORK: As "digital literacy" becomes a required skill for students, and research must be conducted using both print and online resources, how is the role of the school librarian changing?

KATHY SCHROCK: The role of the school library media specialist has not changed at all. Her or his job was always to help students and teachers find and identify resources that meet their needs to solve a problem or conduct a research process. However, the job has expanded to training others to think and act like librarians—how to narrow down the topic to a manageable one, how to search effectively for keywords and related topics, how to evaluate the information found for its applicability to purpose and authority, and how to respect intellectual property by properly citing all sources. With the information flow increasing at a rapid pace, everyone needs to have the same skills as the information specialist who is already in their building— the school library media specialist!



CHAPTER 9
How to Create a Grant-Winning Proposal

MANY SCHOOLS TODAY LACK the requisite funding to implement a comprehensive technology program. Money, however, is available for educators brave enough to tackle grant proposals. Grantwriting has become one of the most important activities in public schools, with superintendents hiring their own experts specifically to write proposals for large state and federal grants. Principals, and even teachers, are strongly encouraged to seek outside funding sources. Schools have been required to look outward and forge partnerships with colleges, non-profit organizations, and businesses that will bring additional resources into the classroom.

There is no better time for writing grants than today. Even though the competition is fierce, teachers may be successful if they keep in mind these 10 important guidelines:

1. **START WITH THE EDUCATIONAL NEEDS OF YOUR STUDENTS.** Funders like original ideas that solve problems you or your school are experiencing. Every item you request in the budget has to have a solid pedagogical value related to the goals and objectives of the proposal. If you ask for a computer, it should be clear from the program outline the way you envision a better educational experience for your students by using that computer.

2. **FOLLOW THE FORMAT REQUIRED BY THE FUNDER.** Read the application and guidelines very carefully, and be sure to address each question posed in a clear, succinct way. You may want to call the funder if you have any questions. Check its web site to see if previous years' winning proposals or projects are posted. Learn about the goals of each organization and the grants they provide, then create a list of those that match your school's needs and objectives.

3. **READ PROFESSIONAL LITERATURE ON SCHOOL REFORM.** Most funders are interested in new strategies to deliver instruction, particularly with technology integration. This is a trend of the times.

4. **BE A VISIONARY.** Try to envision what would benefit education in the next two to three years. Do not be afraid of the new. Write a grant for future needs, not for the present; write for exceptional needs, not for the basic. Why? Funders always believe that the basic needs are taken care of by the local school board.

5. **CONSIDER HOW YOU WILL BE ABLE TO DISSEMINATE YOUR PROGRAM.** Equally important to grantors is the replication factor. If you become successful, then it only makes sense that others should want to follow your lead. Addressing this concern in the original proposal tells funders that you have thought this through and that your success will multiply, thus maximizing their dollar value.

6. **ALWAYS THINK OF "SUSTAINABILITY"**—how the school contributes to the project. Mention "in-kind expenses," even if not required by the funder. These are the resources that the school or the district comes up with to match the proposed contribution. Additionally, you will demonstrate that the project will continue in the future even if further contributions from the funder are unlikely.

7. **LOOK FOR THE RIGHT GRANT FOR YOU.** Maybe your academic area (English, social studies, math) will be the right fit; maybe your teaching level (elementary, middle, high school). Maybe you're aiming for small grants, where funds go directly to the teacher, for classroom projects. If you'd like to write larger grants for schoolwide projects, be aware that the school or the district as an entity needs to be involved and supportive of this effort. Most of the state and federal grants require this procedure. For large grant awards, the grant writer may not function as the grant administrator (or project director) after the funds are secured. Therefore, funds for districtwide grants may not be disbursed the way you had originally envisioned in the proposal.

8. **REMEMBER THAT NOT ALL APPLICATIONS ARE AWARDED FUNDING.** If you truly want to make your project happen, submit the proposal to another funder. If you are turned down, write to the funder and ask to see the reviewers' comments. Read them carefully and address the concerns of the reviewers in your revision. Sometimes the lessons learned from being rejected by one funder can be the key to success with another.

9. **WRITE A THANK-YOU NOTE.** No matter what the outcome of the grant funding, send a thank-you letter that invites the funder to come visit your school and observe your students in action.

10. **REMEMBER, THE MORE GRANT PROPOSALS YOU SUBMIT**, the better your chances of attracting funding.

For starters, go after local grantors—especially those with ties to your community. Seek out those companies that traditionally give money for community initiatives. Soft drink distributors, high-tech companies, and local PTA groups are all good places to start. If you're stuck, try the business section of the phone directory. Also consider state grants, where you will have less competition than for national grants. Your local teachers union newspaper is a very good source for small classroom grants. Internet sources are excellent as well.

Teachers Network maintains an ongoing database of grant opportunities for teachers, many of which have been awarded to our members. For up-to-date grant information, go to: **http://www.teachersnetwork.org/grantsbbs/default.htm**

Anatomy of a Successful Grant Proposal

ABSTRACT OR INTRODUCTION – why you are requesting funding. Provides a brief, basic framework that outlines the details and objectives of your technology program, including relevant facts about your school, problems that funding will help solve, and the total amount of funding requested.

INSTITUTIONAL OVERVIEW – who you are. Briefly outline your institution's credentials and provide references for verification. This section should describe your demographics and highlight your school's achievements.

NEEDS ASSESSMENT – why the project is important. Use this section to describe your project's target audience and the benefits they would gain from the project's implementation. Detail the specific actions and timeline necessary to achieve the project's goals.

PLAN OF ACTION – who will do what, when. A school-based grant will need a grant coordinator. Include staff members who will also be part of your program, such as teachers, paraprofessionals, and technology coordinators. Remember to include support staff such as secretaries and school safety officers, especially for programs that will take place outside of regular school hours.

EVALUATION METHODS – how you will measure the project's success. Describe the quantitative and qualitative methods you will employ to assess student learning and achievement. It is important to have a valid evaluation tool to support your claim that you have accomplished your goals.

A SECTION ON SUSTAINABILITY – how you will keep the project going. Do you have support from community groups, a partnering university, or another funder? Your school will also be contributing in some way, perhaps through funding teaching hours or making structural modifications to accommodate new equipment.

BUDGET – what it will cost. Costs should be very specific, and clearly broken down into itemized sub-categories. It is usually a good idea to present your budgetary requirement in the form of a numerical statement and to minimize narrative as much as possible. Ask an administrator for assistance if you are unsure of the budget categories and code numbers used by your district.

SUPPORTING DOCUMENTS – why you are qualified. Include real-life classroom materials, such as student work samples or journal entries, to make the proposal real to the funder. Attach letters of commendation or recognition that you have received. The proposal may also require a letter of recommendation from your principal and/or superintendent.

Photocopy this, and share it with your colleagues.
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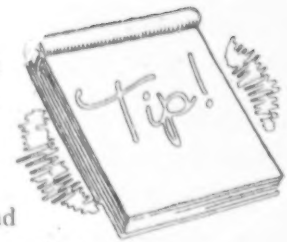
Grant-writing tips from Ed Clement, Teachers Network web mentor:
When I'm writing a grant proposal, I:



- Research the current literature and media reports for the latest educational "buzz words," and then incorporate as many of them as possible into my grant proposals. Words and phrases like "cooperative groups," "critical thinking skills," "integration of technology," "team teaching," and "inclusion" are a few buzz words that are bouncing around these days.

- Make sure the budget section of the grant proposal is as accurate as possible and includes EVERYTHING you need to implement the proposed program. With some of my earlier successful grants, I ended up spending as much of my own money for copying, shipping charges, paper clips, etc. as I did before I started writing grants. I now include enough extra money in the proposed budget to account for unexpected expenses. Sometimes I've had to request a budget modification, but for the most part I haven't had any problem purchasing necessary items not specifically listed on the grant proposal, provided I didn't run over the original amount requested.

- Never write in long hand, even if the grant instructions permit it. I don't own a typewriter so if I can't reproduce the blank grant application on my computer and fill in the spaces electronically, I word process the sections of the proposal and physically cut them out and paste them into the blanks, then photocopy it. It gives the appearance of having been typed.

- Always submit my grant by e-mail, if possible, in addition to sending it by "snail" mail. A few years ago I took a graduate class that required a written log for each class. I submitted the first log by e-mail and as a precaution turned in a hard copy version before class. My e-mail version received a B+ but the identical hard copy duplicate only received a B-!

- Get as many people as possible to proofread the grant proposal before submitting it. The cliché, "two heads are better than one," definitely applies to grantwriting.

As they say of lotto and the stock market, "You can't win if you're not in the game!" Once you are awarded your first grant, and observe the difference it makes for your students, the next proposal will be easier. Good luck!

How to Get the Most Out of Student Writing Competitions

THERE ARE A GREAT NUMBER OF student writing competitions advertised on the Internet, and they are just a quick click away on the popular search engines. Competition enlivens writing assignments. As you identify contests, you will find that you may submit one piece of writing for several competitions. Of course, the satisfactions of winning are great and sundry, and an ongoing source of motivation. Finding competitive opportunities may be used as a computer literacy learning experience, and the results may then be collaboratively displayed on bulletin boards, electronically and traditionally. Once the students choose a contest, they proceed to complete the writing piece as well as any other requirements of the contest sponsor. These contests may be entered via e-mail. For those still in need of assurance, hard copy entries may be sent also. When the results of the contests are announced, and the students receive their awards, the electrical spark of success will have been lit.

Here is an example of a form useful for keeping track of contests students have entered:

Complete this form and have your parent or guardian sign it.

Name _____ **Class** _____

Contest Name/URL _____

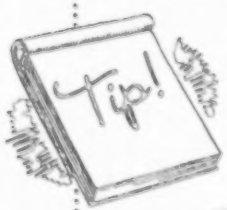
I understand the rules and regulations of the competition.
These include the following:

Writing genre _____ **Page/word count** _____

Entry form required ○ **Yes** ○ **No** **Final Date for Submission** _____

Signature (Student) _____

Signature (Parent/Guardian) _____



- Here's how everyone can be a winner: it doesn't matter if you win or lose, all entries can be published on a school web page or in a newsletter for parents.
- Don't forget to check our "best of the web" collection of links to current student writing contests, at **http://www.teachersnetwork.org/book/contests.htm**

About Teachers Network

Teachers Network is a professional community of teachers and educators working together to improve student achievement. Our four major programs are:

IMPACT II
Disseminator grants are available to teachers at most of our affiliates to further develop and disseminate exemplary programs that they have developed in their classrooms. Grant award winners are:

- Recognized at award ceremonies and publication parties
- Provided with support to prepare materials for dissemination
- Published in print catalogs and online at teachersnetwork.org
- Supported in learning presentation skills and leading workshops
- Networked with like-minded professionals via interschool visits, video, and conferences

Adaptor grants are awarded to teachers interested in adapting award-winning disseminator programs. Interested teachers can learn about disseminator programs in annual catalogs, at local curriculum fairs, and online at:
http://www.teachersnetwork.org

TeachNet
A growing number of our affiliates provide TeachNet grants to schools for teams of teachers to design, digitize, and disseminate curriculum. Selected teams:

- Participate in summer training institutes
- Network via the project listserv
- Have access to curriculum and technology consultants
- Publish materials online

Material developed by schools participating in TeachNet can be found at:
http://www.teachersnetwork.org/teachnet

Technical support pages can be found at:
http://www.teachnet-lab.org

National Teacher Policy Institute
Each spring, teachers at participating affiliates are invited to submit applications for $1,000 fellowships to participate in the National Teacher Policy Institute.

Teachers selected to become fellows in the National Teacher Policy Institute:

- Increase knowledge of major challenges facing the teaching profession through readings and discussions with leading policy experts
- Improve leadership skills
- Are recognized by the public and media
- Represent teachers nationwide as spokespeople for education policy issues
- Participate in conducting action research
- Become members of an online community of educators

The National Teacher Policy Institute is in partnership with New York University School of Education, Education Commission of the States, and National Commission on Teaching & America's Future.

New Teacher Resources and Online Courses
Help is a click away "For New Teachers" at:
http://www.teachersnetwork.org/docs/ntol

On our site, you will find:

- Online mentoring by experienced teachers
- Teacher-developed curriculum units and lesson plans
- Instructional advice
- Links to educational resources

We offer New Teacher Online Survival Courses accredited by the New York City Board of Education. Teachers earn new teacher credit from the comfort of their own homes or schools via an Internet connection and e-mail account.

Courses include:

- Strategic Lesson Planning
- Classroom Management
- Standards/Assessment
- Teaching Methods
- Families as Partners
- Becoming a Professional
- Identifying Resources
- How to Integrate Technology into Lessons
- Teaching Writing with Technology

Course instructors are classroom teachers. The text for the courses is our best-selling ***New Teachers Handbook***, written by teachers, for teachers.

Also in development are online graduate-level courses–designed by veteran teachers from within our network, and offered for credit through our partnership with Cambridge College.

Handbooks By Teachers, For Teachers

Teachers Network publishes handbooks that are written by teachers, for teachers. Titles in this series include:

- *New Teachers Handbook*
- *Teachers Guide To Cyberspace*
- *How We Are Changing Schools Collaboratively*
- *How Teachers Are Changing Schools*
- *Teacher/Parent Partnerships Handbook*
- *Experienced Teachers Handbook*

Teachers Network also produces a series of videotapes, and publishes a biannual newsletter as well as occasional reports, including ***What Matters Most–Improving Student Achievement***.

teachersnetwork.org

Please visit **http://www.teachersnetwork.org**, the premier educational web site of Teachers Network, serving more than 40,000 visitors every month. Our web site features over 6,500 pages of information relating to our four major program areas—and tons of great resources developed by classroom teachers. Our latest Internet venture is streaming video. Nine videos showcase how teachers are bringing new media into teaching and learning.

For more information, e-mail us at:
info@teachersnetwork.org
Or call: 212.966.5582

Teachers Network – Affiliate Information

Teachers Network serves 28 affiliates nationwide–representing cities, counties, and states–that have adopted one of our major program areas. More than 40,000 public school teachers have received Teachers Network grants and fellowships in the areas of curriculum, leadership, policy, and new media.

Los Angeles Educational Partnership (CA)
Dianne Glinos
Grant Manager
dglinos@laep.org
315 West Ninth Street, Suite 1110
Los Angeles, CA 90015

San Francisco Education Fund (CA)
Barry Kaufman
Deputy Director
Barry@sfedfund.org
47 Kearny Street, Suite 200
San Francisco, CA 94108

Santa Barbara County Schools (CA)
Robin Sawaske
Director of Teacher Programs
rsawaske@sbceo.org
4400 Cathedral Oaks Road
Santa Barbara, CA 93110

Santa Cruz/Santa Clara Counties (CA)
Lynn Butterworth
Program Director
schoolsplus@aol.com
Schools Plus
4630 Soquel Drive
Soquel, CA 95073

Neva Shimmon-Hofemann
Assistant Director
neva_hofemann@sccoe.org
Santa Clara County Office of Education
1290 Ridder Park Drive
San Jose, CA 95131

Ventura County Public Schools (CA)
Kerry Roscoe
IMPACT II Coordinator
sroscoevta@aol.com
V.C.S.S. Educational Services Center
570 Airport Way
Camarillo, CA 93010

Celebration of Excellence (CT)
Patricia Zimmerman
Program Director
patricia.zimmerman.po.state.ct.us
205 Skiff Street
Hamden, CT 06517

Broward Education Foundation (FL)
Coco Burns
Program Coordinator
befburns@aol.com
600 SE 3rd Avenue, 8th Floor
Ft. Lauderdale, FL 33301

Dade Public Education Fund (FL)
Linda Lecht
Executive Director
llecht@bellsouth.net
4299 NW 36th Street, Suite 325
Miami, FL 33166

Education Fund of Palm Beach (FL)
Kelly Hurley
Executive Director
hurley_k@firn.edu
3364 Forrest Hill Blvd., Suite A132
West Palm Beach, FL 33406

Leon County Schools Foundation (FL)
Tyler Turkle
Executive Director
carrolj3@mail.leon.k12.fl.us
118 North Monroe Street
Tallahassee, FL 32399

Polk Education Foundation & Business Partnership (FL)
Susan Copeland
Program Specialist
scopeland@pcsb.k12.fl.us
1925 South Floral Avenue
Bartow, FL 33830

Chicago Foundation for Education (IL)
Angela Pilgrim
Executive Director
pilgrim@chgfdneduc.org
400 N. Michigan Avenue, Room 311
Chicago, IL 60611

Illinois Mathematics & Science Academy (IL)
Linda Brazdil
Coordinator, Smithsonian Research & Diffusion Network
brazdil@imsa.edu
1500 West Sullivan Road
Aurora, IL 60506

Fayette County Public Schools (KY)
Mike Kennedy
Professional Development Specialist
mkennedy@fayette.k12.us
704 East Main Street
Lexington, KY 40502

Boston Public Schools (MA)
Barbara Locurto
Director, IMPACT II
blocurto@boston.k12.ma.us
55 New Dudley Street
Boston, MA 02120

Maine Center for Educational Services (ME)
Jenifer Van Deusen
SEED Project Director
jvandeusen@mainecenter.org
292 Court Street, Suite 3
Auburn, ME 04210

Chapel Hill-Carrboro City Schools (NC)
Hazel Gibbs
Personnel Director
hgibbs@chccs.k12.nc.us
Lincoln Center
750 S. Merritt Mill Road
Chapel Hill, NC 27516

Charlotte-Mecklenburg Public Schools (NC)
Suzanne Newsom
Professional Development Specialist
s.newsom@cms.k12.nc.us
428 West Blvd.
Charlotte, NC 28203

A+ For Kids Teacher Network (NJ)
Joyce Kersey
Executive Director
Apluskid@mindspring.com
214 West State Street
Trenton, NJ 08608

Central New York Teaching Center (NY)
Patti Galini
Director
cnytc@dreamscape.com
201 Hudson Avenue
Nedrow, NY 13120

Southern Westchester Board of Cooperative Educational Services (NY)
Elissa Morgan
Supervisor & Staff Developer
lmorgan@westplaza.lhric.org
IMPACT II SW BOCES
2 Westchester Plaza
Elmsford, NY 10523

New York City Public Schools (NY)
Peter A. Paul
Assistant Director
ppaul@teachersnetwork.org
Teachers Network
285 West Broadway, Suite 540
New York, NY 10013

Summit Education Initiative (OH)
Vivian Harpley
Director, IMPACT II
vivian@seisummit.org
The Everett Building
39 E. Market Street, Suite 100
Akron, OH 44308

Houston Independent Schools District (TX)
Susan Wethington
Professional Development Specialist
sweth@tenet.edu
3830 Richmond Avenue
Houston, TX 77027

National Peace Corps Association (USA)
Anne Baker
Director
anne@rpcv.org/globaled
Global TeachNet
1900 L Street NW, Suite 205
Washington, DC 20035

Fairfax County Public Schools (VA)
Sylvia Auton
Director, IMPACT II
sauton@walnuthill.fcps.k12.va.us
7423 Camp Alger Avenue
Falls Church, VA 22042

Wyoming Department of Education (WY)
Debra Holloway
Director, Wyoming Teacher Policy Institute
dhollo@educ.state.wy.us
Hathaway Building
2300 Capital Avenue, 2nd Floor
Cheyenne, WY 82002

National Headquarters
Teachers Network
285 West Broadway, Suite 540
New York, NY 10013
Info@teachersnetwork.org

Ellen Dempsey
President & CEO
edempsey@teachersnetwork.org

Ellen Meyers
Senior Vice President
emeyers@teachersnetwork.org

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teachers network

285 West Broadway
New York, New York 10013
info@teachersnetwork.org
www.teachersnetwork.org

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